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# THE South African MINING JOURNAL

WITH WHICH IS INCORPORATED

"The South African Mines, Commerce & Industries."

ESTABLISHED 1891.

PUBLISHED EVERY SATURDAY

VOL. X, PART II, No 497.]

JOHANNESBURG, TRANSVAAL, SATURDAY, SEPT. 14, 1912.

[WEEKLY, PRICE 6D.]

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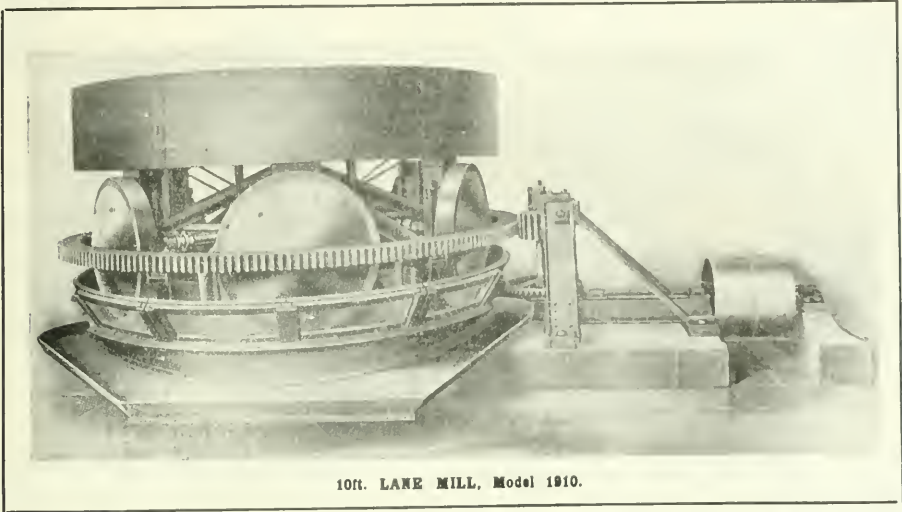
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Investments	"	-	-	-	-	-	11,052,467
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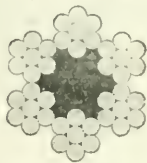
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Fig. 2. HAULING.



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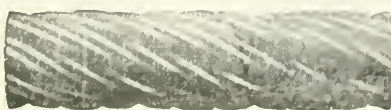


Fig. 26. WINDING.

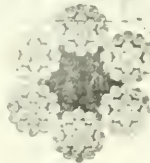


Fig. 1. HAULING.



## PATENT FLATTENED STRAND ROPES.



Fig. 4. WINDING.

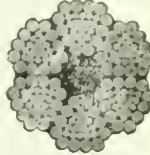
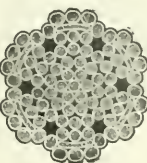


Fig. 13. SINKING.



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Fig. 13 for Sinking & Fig. 11b for Cranes, &c., are non-twisting.

Fig. 11b. CRANE &c.

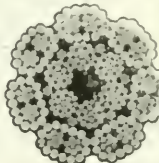
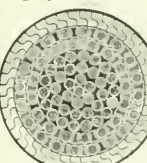


Fig. 15a. WINDING.



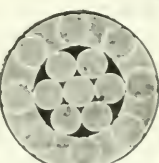
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Fig. 20. GUIDE.



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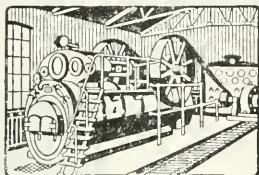
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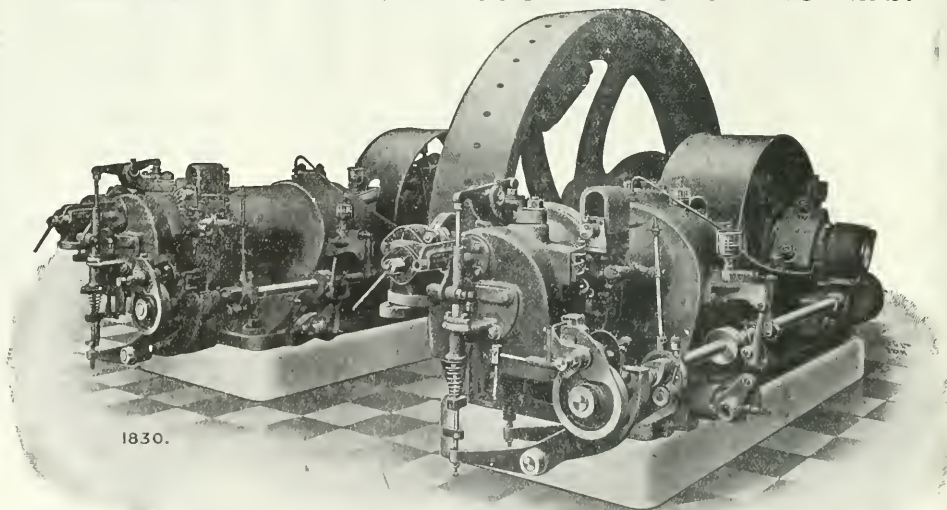
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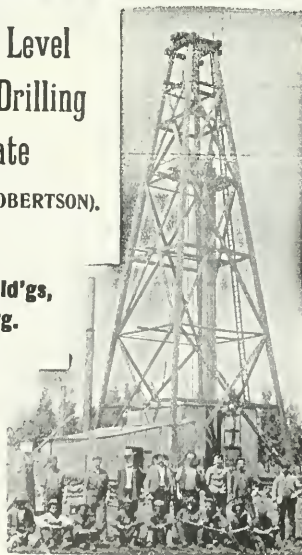
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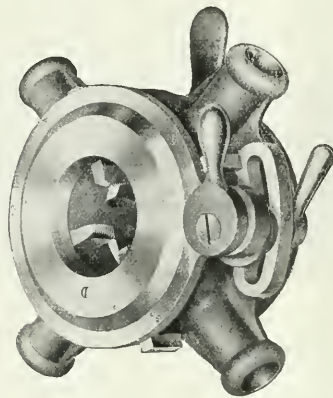
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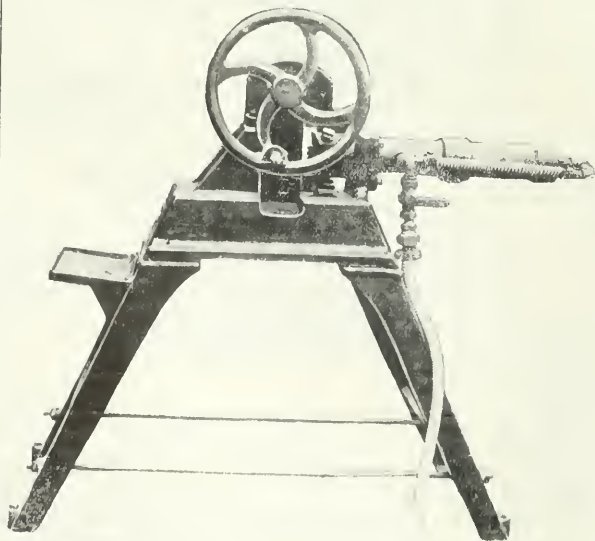
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NOTICE.—The postage of this issue of the *S.A. Mining Journal* is: South Africa, 1d. All other parts, 2d.

## CONTENTS.

PAGE.

Notes and News	33
Topics of the Week:	
Important Diamond Developments	35
Conciliation Board for Miners	35
Land for Miners	36
A Commercial and Industrial Parliament	36
The Tin Deposits of the Cape	37
Skip Accidents on the East Rand	38
The Further East Rand	39
Activity at Barberton	40
Cape Chemical Society: Recent Papers	41
The De Beers-Voorspoed Agreement	42
Dissolved Acetylene: Another New Rand Industry	43
Workmen's Compensation in the Transvaal	44
Photolyse	45
The Year with the Shimmer and Jack	46
The Present Position of the Van Ryn	47
The Year with Pigg's Peak Development Company	48
Correspondence and Discussion: "Mine Managers' Examinations"; "Roberts Victor Diamonds"; "Geological Truth Tablets"	49
Review	50
Rhodesian Section:	
Latest Mining News	51
Miners' Phthisis Victims and the Land	52
The Geology of the Victoria Tin Field	53
The Week in the Sharemarket	54
Mining Men and Matters	54
The August Output in Detail	55
Quarterly Reports	57
Engineering Notes and News	59
The Making of Estimates	59
Finance, Commerce and Industries	61
Automobile Notes	63
Company Meetings	67
Index to Advertisers.	

## Notes and News.

On Wednesday Mr. S. C. Steel, joint secretary of the Crown Mines, Ltd., announced that the issue of £1,000,000 5 per cent. debentures had been over-subscribed, and that it had been decided to close the list of applications. The list was opened on Monday last (9th inst.), and the arrangement was that it should be closed on or before Friday. The success of the issue, of course, is significant testimony to the appreciation by the investing public of the sound administrative and financial methods of the sponsors of the issue and of the board of the Crown Mines.

Another ex mine manager—this time from one of the "outside" gold mines—is under notice to appear before the Criminal Courts, charged with the falsification of returns. The offence is, of course, a serious one, and the case is likely to attract considerable attention, as it may lead to further interesting disclosures.

The special majority number of the *South African Mining Journal*, running to 440 pages, is now in the binder's hands and should be ready before the end of the month. The number will be entirely distinct from the ordinary weekly issue and its price will not be included in the annual subscription to the *Journal*. There will be no second edition printed, and the issue will be exhausted with the first.

We desire to record with sincere regret the news of the death of Lieutenant Claude Bettington, of the Army Flying Corps, which occurred under painfully dramatic circumstances during the Home Army manoeuvres this week. Mr. Bettington was the eldest son of Colonel Bettington, the well-known Rand pioneer, first president of the Stock Exchange, and a valued contributor, occasionally, to our own columns. The deceased officer had a distinguished engineering career, had been connected for some years with the Corner House, and with Messrs. Fraser & Chalmers, and was the inventor of the very successful Bettington boiler. The sympathy of the whole community goes out to his sorrowing parents and relations, who have the consolation, at least, that he died for his country.

On account of a shortage of water, the manager of the Zaaiploats Tin Mine has advised that he will be unable to run the 15 shafts for more than two shifts of eight hours each, and that he is laying a pump down to dewater No. 1 section to use as make-up water for circulating. Later the following telegram was received: "Will shut down on account of short supply of water. Mill will be ready to start three o'clock. Shall be able to keep mill running sixteen hours per day."

Gold Mine Accounts and Costing—A Practical Manual for Officials, Accountants, Bookkeepers, etc., by G. W. Tait (London, Sir Isaac Pitman & Sons, Amen Corner, 5s. net).—This valuable little book is the outcome of many years' practical experience in account keeping in connection with mines of the Witwatersrand. The pages reproduced in this *Journal* and were widely appreciated. Although the method of accounting set out in the pages is particularly applicable to the gold mines of South Africa, it will be found of considerable use by all who are interested in the keeping of the accounts of mines of all classes and in all parts of the world. The first chapter deals with the division of accounts, and succeeding sections are concerned

with "Job Numbers, etc.," "List of Mine Books," "Mine Office Books," "White Timekeeper's Office Books, etc.," "Native Timekeeping," "Storekeeper's Office Books," "Subsidiary Accounts," "Working Costs Accounts," "Capital Accounts," "General Accounts," and "Distribution." There is also to be found at the end of the volume a useful appendix giving a skeleton balance sheet with references. Mr. Tait's work contains elaborate references to all details of mining and metallurgical practice, and fills a long felt want in technical literature. The book is eminently practical and we can strongly recommend it to all interested in mining accounts.

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The aggregate of the profits earned by the "Groups" of the Witwatersrand for the month of August was £1,028,515, or nearly £10,000 more than the earnings for July. Whilst the "Eckstein" mines' profit for August

was £255,747, as compared with £229,719 in July, the Rand Mines earning declined from £241,295 to £220,285, and the net improvement for the Central Mining Group is thus just under £5,000. Gold Fields mines, largely no doubt on account of the fire at the Knights Deep, are £16,000 lower, and the Farrar, Neumann and Consolidated Mines Selection groups each register a small decline. The Barnato mines record a further advance for £68,311 to £69,525, and it is worthy of note that the mines under Johannesburg Consolidated Investment Company control have exhibited monthly increases since the beginning of the year. The Kleinfontein profit improved from £22,509 in July to £23,291 in August, and the mines under General Mining and Finance control have advanced from £60,198 to £63,981. The Goerz group records a small improvement amounting to £454. The Robinson group records £97,502, as compared with £76,029 in July.

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Kleinfontein, in common with all the other mines on the Further East Witwatersrand, is showing up much better in its development. The New Kleinfontein Ore Reserves. Some few months ago values fell off appreciably, but since the beginning

of the year a marked improvement in the development face, assays and widths has been manifested. During the three months ended with September of last year the amount of development sampled was 2,990 feet, the width of reef disclosed being 42 inches and the value 29s. 10d. per ton. In the following three months 2,520 feet were sampled, giving 29s. 4d. over a width of 44 inches. In the two first quarters of the current year distinct improvements have been manifested. The first period gave 2,110 feet 43½ inches and 37s. 8d., and the June quarter 2,835 feet 41½ inches and 36s. 10d. These much improved development features are reflected in the pay ore reserves which, at the end of the various periods stated below, were as under:—

	Reef width. Assay		
	Tons.	ins.	value.
1911.—September quarter...	1,127,973	40.66	31 8
December quarter ...	1,146,531	43.94	31 10
1912.—March quarter...	1,156,316	44.54	31 10
June quarter...	1,141,072	44.26	33 4

\* \* \* \*

It is encouraging to note that the English papers have been reprinting with approval the views of this paper on the improving conditions of the Rand. The Yorkshire Observer states:—The South African Mining Journal of Johannesburg is not an incorrigible optimist, but in its issue to hand by this week's mail the opinion is very definitely expressed that the outlook for the Rand is improving. The recent reports of many of the leading mines are quoted as showing several good features, while general conditions are stated to be on the mend. The new recruiting corporation is described as a big step in the direction of economy, while other savings, not less tangible, are expected to result from the reduction of railway rates. Cheap power is also beginning to come into the realm of practical politics, while the

prosperity now being enjoyed by the farming industry is expected to have good results from the Rand by reducing the cost of living. Moreover it is admittedly a fact that the new men introduced into the industry some few years ago are now getting to grips with problems peculiar to the Rand, and the end of their period of probation may be the beginning of a better era. Lastly, it is interesting to find that the efforts which the Government have induced the groups to take to improve living conditions on the mines—to stamp out phthisis, to fight pneumonia, and reduce the high native mortality rate—which were described a short time ago as crushing burdens placed upon the industry by an unsympathetic Government, are now stated by this recognised authority of the Rand mining companies as "good business," as having money value that will in time pay dividends to Rand mining shareholders."

\* \* \* \*

Although the Cape Colony has never yet given proof of possessing a profitable gold field, it is known that the precious metal does occur in some portions of the Province, and many attempts have at one time and another been made to prove a payable deposit. The latest discoveries which aspire to a measure of importance are certain gold-bearing beds in the vicinity of Cradock, on which a considerable amount of time, labour and money have been expended by local people during the past two or three years. Recent work has been chiefly confined to a curious occurrence on a hill known as Spearman's Kop, situated about 25 miles from the town of Cradock. Here an adit has been driven about 250 feet into the side of the hill and has exposed a formation which is stated to contain several dwts. of gold per ton over a width varying between 18 and 24 inches and in some places as much as four feet. The formation, which contains a so-called "pudding stone" rock carrying chalcopyrite includes small quartzite leaders carrying visible gold of capillary and malleated form, and it is stated that in addition to gold the "reef" contains a certain amount of platinum. Work has also been carried out on another occurrence situated about 60 miles south-east of Cradock, where a certain amount of prospecting has been done on a quartz reef which is said to assay in places as much as 5 ozs. of gold per ton.

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In common with practically all the other important commercial metals, tin has marked a very considerable advance of late, and the average selling price recorded in Cornwall during the past half-year is the highest on record. The rise in tin has not been a matter of a few months, or even a year, and the persistence of the movement is a strong argument in favour of the belief that it is due to natural causes, which are likely to continue in force for some time to come. Although, as already mentioned, the average quotation for the metal during the past six months has been higher than ever before, the present price of £210 per ton is well below the highest figure last year, £231 per ton having been paid in June, 1911. Moreover, throughout that year the price of the metal never fell below £170, which in itself constituted a record, the previous best being in 1906, when the quotation fluctuated between £163 and £215. At the present time the statistical position remains very strong, for while consumption continues to expand there has, so far, been little increase in the total of production.

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The annual report for the year ended July 31st, 1912 shows the working profit amounted to

**The Zaaipplaats** £108,364 17s. 1d., which together with the balance of £27,675 10s. 11d., carried forward from last year totalled £136,040 8s., which amount has been dealt with as follows: Government royalty, 1911, £14,014 4s.; directors' and auditor's fees, £5,272 18s. 6d.; development redemption, £1,452 11s. 11d.; expenditure on account of capital, £14,397 2s.; dividends to shareholders, £90,000; balance carried forward, £10,873 11s. 7d.; total, £136,040 8s. Out of this balance the Government royalty for the year will have to be



paid. The expenditure on account of capital for the year amounted to £33,437 10s., made up as follows: Buildings, £4,869 19s. 7d.; machinery, plant and equipment, £25,030 1s. 2d.; water service and reservoirs, £1,242 2s. 11d.; mine development, shafts, etc., £2,295 6s. 4d.; total, £33,437 10s. Of this amount the directors have written off against this year's profits £15,849 13s. 11d. (£14,397 2s. of which has been placed to account of profits reinvested in buildings, machinery, plant, etc., and £1,452 11s. 11d. against development redemption), and the balance of this capital expenditure will be provided for out of future profits. The heavy capital expenditure during the year was mainly, as will be observed, on account of machinery and plant. The power supply for the reduction plant and the hoisting machinery on the mine is now being generated by a central power station, the erection of which was recently completed; an eight drill air compressor has also been installed and further expenditure was incurred in connection with the replacement of the light stamps by heavy ones. Additions were also made to the concentrating machinery: the power plant on the Sterk River was duplicated; and a 15 foot Brunten Calciner now in operation was also completed. A certain amount of money was also spent on the new slimes plant. It is estimated that a further £7,200 will be required to be spent on capital account, mainly in connection with the completion of the new slimes plant. Beyond this amount the directors do not anticipate any large capital expenditure during the forthcoming year. With the completion of the new slimes plant, the mill and concentrating machinery will be adequate for all requirements, and it will also be capable of treating the large amount of accumulated sands and slimes from which source the company will derive additional profits."

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In the manager's report it is stated that "a recalculation of these has been made. The ore lying at surface at the various sections and blocked out underground is approximately 24,622 tons, value 3.42 per cent. tin. The branch pipes are not included in this estimate, and can be relied on for a considerable tonnage of good grade ore. The accumulated sands and slimes amount to about 60,000 tons which will return a good profit on retreatment. The alluvial deposit in the valley below the mill has not been worked on. It is our intention to take this in hand at a later date. It is a valuable asset." It is explained in the directors' report that there is a difference between the figures given in the last annual report and those given by the manager in his report for the past year. The main reason for this difference is that the present figures show the actual ore lying at the surface and blocked out underground. No account being taken of 'anticipated' tonnage, as referred to in above-mentioned annual report, it is impossible to give an estimate of the tonnage to be derived from the numerous branch pipes, supplementary fillings, etc., in the various sections, nor the alluvial deposit in the valley, all of which, however, form a very valuable asset, and add considerably to the reserve of ore." The yield was as follows: 15 stamps ran 326-20 days; tons ore crushed, 29,330 tons; average yield metal, 3,760 per cent. tin; concentrates won, 1,647 tons; average value concentrates, 67 per cent. tin. "It is anticipated," continues the manager, "that the retreatment of the accumulated slimes with the new plant will commence about the middle of October. The rainfall in the district has been the lowest recorded for many years past, only 10.04 inches having fallen since the beginning of the year, resulting in the drying up of streams to a large extent. This caused us some anxiety for a time, as we anticipated the probability of stamps being hung up for want of water, but I am pleased to be able to state that the Sterk River is still running so that with our two return pumps, and the mine water there is ample water for our requirements, and we hope to keep the mill going through the rest of the dry season."

## TOPICS OF THE WEEK.

### IMPORTANT DIAMOND DEVELOPMENTS.

QUITE the most important event of the week was the accession of Mr. John Munro to a seat on the board of the Premier Company. Another representative of Mr. S. B. Joel in the person of Mr. Gustav Froth already has a place on that board, and Mr. Munro's election is generally taken to promise that the controlling interest in the Premier Co. may pass into the hands of Messrs. Barnato Bros. Through their Kimberley representatives, the same firm has also a big interest in De Beers; Mr. S. B. Joel or Messrs. Barnato Bros. own a controlling interest in the New Jagersfontein; and the latest move may, therefore, foreshadow, if it does not actually reflect, the linking up of the big producers. The consummation would be one to the benefit alike of South Africa and the diamond market. For this country, it means that a period would be put to the insane competition that at one time wrought such havoc in the market for the product, that caused the closing down of some Kimberley mines, and the working of all at a decreased profit. For the diamond market it means greater stability, an assured supply, and no danger of over production. From the point of view of the Government, as owners of six-tenths of the profits of the Premier, it is a step in the right direction, as the State's share of the profits naturally grows in proportion to the rest. That the recent developments were not entirely unforeseen is shown by the marked rise in the price of all classes of stones and of all diamond shares in the past few weeks. To that all round improvement the latest reports from London testify. The last mail brings news that quite an important further advance has been established in the leading diamond shares, compounded by favourable rumours. At first it was reported that there were fresh negotiations between the De Beers and the Premier concerning an arrangement, and since it was stated the De Beers would pay an extra bonus of 10s. per share at the end of the year; also that the Union Government might forego a portion of the share of the profits now falling to it. The strength of diamond shares is based, of course, on the high prices now ruling for the precious stones. It appears that the Diamond Syndicate has completely sold out its Bultfontein shipment, and a very keen demand was expected for the Kimberley shipment, which was ready for sale soon after the mail left. Similar good fortune is attending the Premier diamonds. Prices of Germiston stones have been raised by five per cent. by the Antwerp Syndicate, but the stones are being eagerly taken by their customers, making an advance of twenty per cent. since the commencement of the present year.

### THE MINERS' CONCILIATION BOARD.

THE Government has somewhat weakly given way to the demands of some of the men on the mines and admitted the claim for an Arbitration Board. We would like to the last to attempt to "crab" the efforts of such an instrument of conciliation, if it were an instrument of conciliation and not a mistake. Neither side, of course, under the existing Act, is bound by the recommendations of the Board, and its only certain effect is to demonstrate to an apathetic world that the agitators have really succeeded in bending up a following on some of the mines. Nothing is easier, of course, to that class than fishing, with a measure of success, in troubled waters. The chief grievance against the new agreement is, apparently, that the terms of the printed document are a little long winded and detailed. But a moment's reflection would convince any one that the length and apparent obscurity of the form are due to the variety of circumstances it necessarily was destined to meet. Short contracts usually spell long law suits, and the framers of the new underground contract form for the

Rand, in making their draft detailed and comprehensive, were, no doubt, prompted solely by a genuine desire to obviate misinterpretations, bringing vexatious lawsuits in their train. At any rate, the Government has been prevailed upon to appoint a Board, and the dreary farce of taking evidence now begins. For the life of us we cannot see what good can come of it. In the only instance where the provisions of the present Industrial Disputes' Act were brought into force, namely, during the Pretoria bricklayers' strike, nothing came of it. If the men don't like the judgment they strike, arbitration or no arbitration. In the other Colonies, where the idea has been tried, it has proved useless and futile. In New Zealand, where it has been most largely tried, its failure has been most pronounced. That country possessed even more advanced machinery for meeting all contingencies, and its experience has a salutary lesson for us. When labour in New Zealand asked for higher wages or benefits of any kind, the Arbitration Court almost unanimously decided in favour of the men. Their demands were acceded to, they got their way, and were satisfied—for a time. But when trade grew bad, and employers asked for a reduction in wages, demanded, in fact, some of that consideration from the men, which the employers had extended in the halcyon days of prosperity, the Arbitration Court, it is true, decided in favour of the employers, but the men refused to abide by that decision, and the Court could not enforce its ruling. The Act was, therefore, not unreasonably described as a "fair-weather" measure. This we may interpret to mean an unfair measure. With the men it was all take and no "give," for the Court could not, in practice, punish them without punishing their employers and injuring industry. In effect, the men found they could say with perfect truth to their employers, "heads we win, tails you lose." Here the position is not dissimilar. We shall be glad to find that we are wrong, but we confess we cannot regard the appointment of a Conciliation Board as other than a mistake. It can do no good, but it can do much harm.

### LAND FOR MINERS.

The Small Holding's Commission has already been successful in providing food for thought. Mr. Schumacher's housing scheme has prompted a distinguished visitor in our midst, Earl Grey, to give the Commission the benefit of his valuable experience of housing enterprises in Hampstead; and Dr. Macaulay's small allotment proposals have drawn forth more numerous, if less practicable, suggestions for making our miners market gardeners in their spare time. At the first blush it is clear that it would be only too easy to kill all these proposals with ridicule, to point the absurdity of turning the tired miner, after his wearisome day underground, into a horticultural enthusiast or a contented husbandman of three acres and a cow. It would be easy to picture the physical languor and the mental craving for excitement of the jaded toiler from the depths of the mine, even though his labour does not extend beyond mere supervision. And it cannot be ignored that many who know the miner intimately are most reluctant to admit that he can be induced by Governments, magnates or mine directors to change his pastimes and his mode of living. Indeed, in a utilitarian community such as this, where all men work, men are distinguished mainly by their different pastimes, and the question is, will any scheme be really and permanently successful in taking the men's leisure thoughts off gambling in its many forms, off mere idle amusement or off the cheaper amusements wherein the worker finds solace for his lack of more engrossing interests? We have sketched the arguments of the cynics, but we are not of them. Indeed, it would be a counsel of despair to set one's face against the possibility of reforming existing conditions on the mines. In Earl Grey's comprehensive and cheap housing schemes, and in the attractive word-pictures of the "small farm" enthusiasts, who have given evidence this week, we see great potentialities for the Rand. It may be that there

is more than a touch of exaggeration in the dreams of Rand outcrops fringed by profitable orchards to the north, and the far—but not too far—deep levels flowering in close set market gardens. But the idea is sound. Even if it is too late to catch this generation of workers on the mines, it is eminently desirable to catch their successors—and catch them young. Environment, we know now, plays at least as big a part as heredity in moulding and making the men of the future. Hitherto the environment of the children on the mines has not been a particularly ennobling or character-building influence. The Small Holding's Commission has a powerful opportunity to help change all this. It can do something for the present generation of men on the mines; it can do much more for the coming generation; and if its inquiries result in the formulation of a practicable scheme to frame the drab Reef in a setting of small farms, fruit and flowers, it will have rendered a national service of the first magnitude.

### A COMMERCIAL AND INDUSTRIAL PARLIAMENT.

At Pietermaritzburg this month the annual congress of the Associated Chambers of Commerce of South Africa meets to consider a long agenda relating to the outstanding commercial and industrial problems of the Union. The interest and importance of this gathering grows each year as fiscal questions pass from the academic to the practical and political stage, and as the economic issues emerge from the obscurity characteristic of a country's beginnings. This year the Parliament of business men will have the fiscal problem presented to it as a very concise, tangible and living issue. A series of resolutions in reference to the Report of the Commission on Trades and Industries will be moved, of which that emanating from the Johannesburg Chamber is the most notable. The latter resolution comprises four clauses, and lays down a complete fiscal policy for South Africa. Its first proposition is that, "having regard to the fact that the prevailing high cost of living restricts industrial operations and the development of the country generally, the interests of the consumer should have paramount consideration in the framing of all tariffs." The Johannesburg Chamber of Commerce, moreover, asks the Congress to affirm, "that a protective Customs tariff is opposed to the interests of South Africa," because one of its effects "now is, and must be for a long time to come, to increase the cost of living, and thus to discourage immigration and closer settlement." Another objection is "that the tendency of protection to create monopolies, of which ample evidence exists in connection with other countries, will be still stronger and more harmful in a sparsely-settled country like South Africa." The Johannesburg resolution therefore proposes, the retention of a low Customs tariff for revenue purposes, special duties on spirits, wines, tobacco, patented drugs, and articles of luxury—raw materials, farm implements and fertilisers, and other commodities which will assist in the development of industries, to be admitted either free or at a low rate of duty; and that industries for which a claim for State assistance can be substantiated be encouraged by bounties instead of protection. In those resolutions the Johannesburg Chamber has, of course, put forward a characteristically clear and statesmanlike fiscal policy, and the only policy that can advance industrial South Africa without injury to its existing economic fabric. The business men of the Rand are too close to the throbbing heart of things to entertain any doubts about the best means of securing the advancement of the country for which all, allowing no monopoly to the high protectionists, are striving. The coming Pietermaritzburg Congress may have no immediate or visible effect. It must content itself with passing resolutions and educating its members in the cardinal facts of the case. None of that spade-work, however, none of those discussions will be wasted, if they help to clarify men's views and to enlighten the doubters from the other Provinces on the great fiscal issue that is every day bulking larger before the Union.



## THE TIN DEPOSITS OF THE CAPE.

### English Capital Becoming Interested—Promising Discoveries over a Large Area—The Desirability of an Honest and Adequate Investigation.

A RATHER unsatisfactory feature of the Mines Department Statistics for the current year is the absence of any evidence of activity in the tin fields in the vicinity of Capetown. Kuils River is, of course, temporarily unproductive in consequence of the refloitation scheme which was lately arranged. There has been no yield from the neighbouring properties, however, while the production which was anticipated from the much-talked-of discovery in the vicinity of Devil's Peak, within the municipal boundary of Capetown, has quite failed to put in an appearance. In spite of these unsatisfactory circumstances, there are reports to the effect that a great deal of interest is still being taken in the various ore discoveries and indications which, although they have led to no mining operations of importance, have nevertheless proved that the country within sight of the Cape metropolis is a tin-bearing region with distinctly promising prospects.

It is greatly to be hoped that the undertaking at Kuils River, which has now passed into the competent hands of an English company, unfettered by local prejudices or other disadvantageous considerations, will give such an account of itself as will encourage further enterprise in the same district, and will, moreover, attract outside capital and outside experience of sufficient standing to give the district the opportunity which it seems to deserve.

The geological conditions of the district in which tin ore has been found at numerous points appear to be favourable to the occurrence of these deposits. There is first all the existence of granite, in which, by the way, some of the most important veins have been discovered, and upon the surface of which some rich alluvial deposits have been located and partly worked. Overlying this, at a steep angle, and, in some instances, flanking it, are the slates and quartzites of the Malmesbury series, in which the granite is intrusive. In these beds, also, tin veins of a promising kind have been opened up in comparatively shallow workings, and it is probable that in no part of the district is the granite at a very great depth below the surface of these rocks.

#### TYPES OF ORE DEPOSITS.

The types of deposits in the country under review may be grouped as:—(1) Veins and associated impregnations in granite. (2) Veins and associated impregnations in rocks of the Malmesbury series. (3) Detrital deposits resulting from the denudation of the two previous types.

Examples of the first type, as observed by Dr. P. A. Wagner, are the occurrences on the farms Langverwacht and Hazendal, near Stellenbosch, and about 18 miles east of Capetown. The well-known alluvial workings belonging to the Kuils River Tin Company are situated on the farm Langverwacht, on the slopes of a low line of granite hills along the upper horizons of which the veins from which the tin ore was denuded have been traced for the distance of about a mile. The granite is a coarsely porphyritic variety with biotite, and the veins are accompanied by and intimately associated with belts of a fine-grained, light-coloured, granular micaceous rock which has been termed a greisen, but which Dr. Wagner asserts to be a leucocratic dyke rock composed essentially of quartz, albite, and muscovite. The veins themselves are of compact white quartz, the only other gangue mineral being muscovite, which has been concentrated along the selvages of the veins in a manner not dissimilar to that which characterises the "Zwitter Flotze" of Zinnwald, in Saxony. They run in a north-westerly direction and dip at an angle of about 30 degrees to the east. The cassiterite runs in large crystalline masses and in crystals disseminated through the quartz and in stringers traversing it. Wolframite, molybdenite and arsenopyrite also occur, and wolframite is particularly prominent in a series of cross veins coursing in an easterly direction, which are noticeable as one passes over

the range into Utkyk, particularly in the neighbourhood of the Vlagge Berg. Although the veins dip at a comparatively low angle, it does not appear that they have been located on the eastern side of the range, where boring was proposed a few years ago. Other veins carrying tin ore have been opened up there, however, in an area where the fissures appear to have no systematic arrangement. These circumstances have led to the statement that the country in that neighbourhood is very much broken, in the sense that no regularity is to be found in depth or lateral extent. There seems to be no solid reason for coming to this conclusion, and it is to be hoped that an investigation will, at some time or another, be made into the real facts of the case. The more important lodes are evidently those which crop out along the western side of the range above Langverwacht, for although alluvial tin is found on Utkyk, the deposits are not to be compared, in point of richness, with those on the former property.

#### WIDE EXTENT OF ALLUVIAL TIN.

As far as we are aware no other veins of importance have been discovered along the hills, which extend from Langverwacht and Rosendal towards the east, but that they contain tin deposits of some type, probably as stockworks, is proved by the fact that alluvial tin is found and has been worked to a small extent at the extreme end of the Bottelary Berg, near Franschman's Hoek. The wide extent of country over which tin occurrences have been found in the granite and the adjacent Malmesbury beds is worthy of remark. Workings have been opened on the Devil's Peak, Capetown, 18 miles to the west of Langverwacht, and upon Welbeloond, at the northern extremity of the Tygerberg, to the north-west of Langverwacht, while prospecting pits and shafts have exposed tin-bearing veins still further to the north, on Hoegkraal and Papkuilsfontein, these points, with Kuil River and Capetown, forming the apices of a more or less equilateral triangular of country with an area of some 100 square miles. The Tygerberg deposits lie in the Malmesbury beds.

It cannot be doubted that tin will be found over a much wider extent of country than that indicated, and that within the limits of the area specified other deposits of importance will be found. There have been, as a matter of fact, some interesting discoveries within the last few months, which have not yet been referred to in the newspapers. They have been considered somewhat favourably by an engineer associated with a group of English financiers, and it is not unlikely that more will be heard of them at an early date. It is an interesting fact that Mr. Douglas Osborne, who came to this country to investigate the merits of some alluvial deposits in Swaziland, should have been much more impressed with the Kuils River gravels than with any other occurrences of a similar kind that he had seen in South Africa, and if this badly-used property should be fortunate enough to draw serious attention to other parts of the district the good people of Capetown may yet have occasion to overlook the past and feel thankful for the efforts of the early prospectors who searched for petroleum in the granite of Langverwacht.

#### Transvaal G.M. Estates

The following are the results of operations for August at the Transvaal Gold Mining Estates—Central Mine: Tons crushed, 13,050, yielding 8,356 100 ozs fine gold valued at £31,980. Flats 14, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100. Tons crushed, 1,065, yielding 594 039 ozs fine gold valued at £2,191. Total value of month's output, £40,781. Total estimated profit for the month, £23,055.

## SKIP ACCIDENTS ON THE EAST RAND.

### A Suggestion for Safety Catch Inventors—Brake Control on High Speed Hoists.

DURING the past few days there have been two serious skip accidents on the East Rand—one at the New Comet and the other at the Rose Deep—each of which has had fatal results, and each of which has, of course, called for official inquiry. It appears that to industries and mining fields, like individuals, misfortunes seldom come singly. The Rand has on several occasions had a succession of fires and a regular sequence of distressing accidents. It is sincerely to be hoped that the Industry is not now to be troubled by an epidemic of run-away skips.

#### THE SAFETY-CATCH QUESTION.

Both at the New Comet and the Rose Deep the catastrophes were brought about by the skip getting out of control and "bolting" down the shaft. In neither case did the rope break, and the two accidents seem to indicate that the question of the safety of persons travelling in shafts should come up for thorough technical investigation again. Numerous devices have been invented and adopted by Witwatersrand mines and mines the world over, to arrest the fall of cages and skips in shafts, but we believe all these inventions have been based on the eventuality of the rope breaking. Severance of the rope is, in fact, necessary to secure working of these safety catch devices. The New Comet and Rose Deep accidents undoubtedly suggest the necessity for having all cages and skips, travelling in shafts with men, fitted with some form of safety catch which can be brought into immediate operation from the inside of the skip or cage. Obviously there is little to choose in points of danger, damage and fatality between a runaway skip or cage with a broken rope, and a skip or cage with the rope intact which has got out of the control of the engine-driver.

#### MORE EFFECTIVE BRAKE CONTROL REQUIRED.

Concurrently with the suggestion that safety-catches which could be operated from inside the skips or cages themselves should be installed, the question of more effective brake control seems to need serious consideration. The average Rand mine has, in a couple of shafts, to hoist an enormous quantity of ore and to lower a large number of men and a big tonnage of drills and tools from and to great depths at maximum speed.

At the New Comet, when the engine-driver noticed that the drum of the engine was revolving at a very high speed he applied the brakes. The drum, however, according to one account from the East Rand, was revolving so fast that the brakes could not hold it, and although the brakes took some of the speed off, the cage went to the bottom of the shaft.

#### THE NEW COMET CATASTROPHE.

The official account of the New Comet accident, which took place last week, is as follows:—"At the Comet shaft an unfortunate accident occurred while lowering the morning shift. The skip, containing one white miner and a number of natives, got out of control of the engine-driver, running to the bottom of the shaft. Of the natives in the skip seven were killed and about ten injured, three seriously. The white man, J. H. Klassen, who was seriously injured, was at once removed to the Boksburg Hospital. No damage was done to the shaft." At seven the last shift of natives was descending in the cage with Mr. Klassen, who is a developer employed at the bottom of the shaft. There were about twenty men in the skip. The cage went to the bottom of the shaft, which is about 4,000 feet deep. Of the seven natives who were killed two were boys who were at work in the bottom of the shaft and who were pinned down by the cage. After the accident it was found that the engine operating the clutch had apparently not come into action when the lever was put in, and this was the cause of

the runaway. Had the driver lost his head when he realised that the cage was running away everyone in the cage would probably have perished, and the damage in the engine room and elsewhere might have been enormous. The engine working the clutches has never failed before and has been working perfectly smoothly in tests since the accident. As soon as the accident was reported to the management, the Mines Department at Boksburg was notified, and Mr. Ferguson, Inspector of Mines, and Mr. Parry, Inspector of Machinery, were on the scene before 9 a.m. Meanwhile Mr. Klassen was removed to Boksburg Hospital and the natives to the mine hospital. Shortly after the accident Messrs. Ross Skinner, managing director, and Anderson, general manager, were on the scene. They were joined a little later by Sir George Farrar.

#### WHAT HAPPENED AT THE ROSE DEEP.

At the Rose Deep there was an accident at the No. 4 shaft about 7 o'clock on Saturday night last. It appears that the skipman, Du Toit, had occasion to convey three natives, with some drills, to the third level. At about 250 feet from the surface the engine suddenly ran out of control, and the skip, now well under way, began to race down the incline. It ran clean enough, never jamming or leaving the rails, and finally crashed into the pent-house at the bottom of the shaft, just below the eleventh level, or a matter of 2,727 feet from the surface. The engine-driver, realising that he had to deal with a runaway skip, applied the brakes, but the skip was now out of control. The drum was revolving so rapidly that the wire rope was thrown in big coils, lassoing the timbers of the head-gear, but not doing very much damage. All the rope, which is 300 or 400 feet in excess of the actual requirement, was paid out. Indeed, considering all things, the damage was remarkably slight. When the rescuing party went down they found Du Toit and the three natives badly hurt. One of the boys died a quarter of an hour afterwards. Du Toit was quickly conveyed to the New Primrose Hospital. He is suffering from a dislocated ankle, and injuries to his chest and arms. Early on Sunday morning the manager (Mr. Walton), the underground manager (Mr. Adler), the Inspector of Mines (Mr. C. E. Hutton), and several other officials visited the scene. The engines were tested, and found to be in perfect working order. Although the wire rope was intact and showed no signs of weakness, it was considered that the strain had been sufficient to necessitate another coil replacing it, and a new rope is now in use. In the afternoon the skip was brought to the surface. Strange enough it looked none the worse for its wild career. There was not even a dent on the front of the hood, where a fearful concussion, after racing down an incline of 40 degrees for at least 2,500 feet, must have occurred with solid rock at the bottom of the shaft.

It is probable that as a result of these accidents there will be a revival of interest in the important questions of brake control and safety-catches in regard to skips and cages travelling in Rand shafts. Both in regard to engines operated by steam and by electricity there is, seemingly, much need of further investigation and improvement of existing devices.

#### Kolmanskop Diamonds.

The output of diamonds from this company's property at Luderitzbucht for the month of August was 9,003 carats. The low production is accounted for by a shortage of labour, the company's complement of boys being upwards of 100 short.



## THE FURTHER EAST RAND.

### Likelihood of Dormant Ventures Resuming Work—The Outlook at Cloverfield—Co-operative Pumping Suggested.

RECENT developments on the Further East Rand have a marked and favourable bearing on a vast area of ground in addition to the claims owned by working companies. The excellent profits and developments secured by the New Modderfontein, B Modderfontein, Geduld and Brakpan mines together with the strikes of reef announced by the Modder Deep Levels and Modder Areas have put a new and far more promising complexion on affairs in this immense and vastly interesting section of the Witwatersrand old fields. The re-opening in this neighbourhood of certain properties which have for long been idle will be a logical consequence, and it is probable that within the next few months other names will have to be added to the already lengthy list of active ventures in the area lying to the east of Boksburg. If coming events cast their shadows before them on the share market, it would appear that several schemes of re-organisation and renewed activity are on the tapis. The shares of a number of dormant concerns are quoted at substantially better prices than have obtained for a long while past, and the influence of the large profits earned by the two productive Modderfonteins, of the discoveries in the two developing Modderfonteins, and of the excellent returns both as regards profit-earning and development at the Brakpan mines and Geduld is clearly making itself felt throughout the whole of this further East Rand area.

#### THE OUTLOOK FOR CLOVERFIELD.

Cloverfields, for instance, have within the past few months improved in price from 5s. to 8s. 2d., and a fairly early resumption of operations at this Neumann property appears likely. Cloverfield adjoins Modderfontein B on the south-eastern boundary of that famous property. Immediately to the east lies Welgedacht, to the north is Rand Klip and to the south Geduld. Recent developments in Modder B claims and in Geduld certainly point to the probability of the Cloverfield claims containing more gold than hitherto has been suspected. The Cloverfield block consists of 799 claims—a large and compact property.

#### DEVELOPMENTS TO DATE.

In January, 1903, No. 1, or the western of the two boreholes on the Cloverfield area, intersected the pay portion of the Van Ryn Reef at 1,979 feet depth from surface, showing 17½ inches thickness, of which the top 9 inches indicated 10 dwts. and the lower 8½ inches 54 dwts., equal to about 16½ dwts. average over a stopping thickness of 3 feet. The Modderfontein reef formation, thick in aggregate, but unpayable, was passed through nearer to surface. The situation of the bore is due north of No. 3 bore on the Geduld. Bore No. 2 (eastern) in April, 1903, cut reef series from 2,975 feet to 2,998 feet, varying from 1½ inch to 8½ inches in width; assays few grains, except footwall leader of which 6 inches of core was lost; remaining 4 inches of reef assayed 1 oz. 8 grs. per ton. The footwall shales were encountered at 3,008 feet. Calculated from information obtained from the boreholes, as well as those put down on the neighbouring farms, the dip of the reef varies from 12 to 20 degrees. In the centre of the property the reef is probably flatter than is shown by the above dips. The area at the western boundary parallel to the line of strike, is 5,000 feet wide, the greatest width being 5,200 feet. It is proposed to work the property with one five-compartment shaft, located 1,000 feet east of the west boundary and 1,500 feet north of the south boundary. The shaft (7 feet by 18 feet) intersected reef June 15, 1909, at 2,013 feet. Sixteen sections of reef matter all round the shaft indicated by sampling 22.3 dwts. over a width of 10½ inches. The average

value of the 5,400 feet of reef sampled during 1910 was 16.8 dwts. over a reef width of 11½ inches. Mr. S. C. Thomson, the consulting engineer, pointed out that this result in itself could not be considered very satisfactory, but the details of the work indicate the existence of areas of good value. He added that the average over a total of 2,785 feet of reef exposed from the first level drives was 11.7 dwts. over 14.4 inches, whilst the average sampled in the second level drives was 16.7 dwts. over 12.5 inches, which was a decided improvement; and both the north and south faces of this level were stopped in good ore. Mr. Thomson expressed his opinion that the area explored is too small a percentage of the total area of the property to afford definite information for gauging its possibilities. During 1910 a project for the fusion of the Welgedacht, Cloverfield, and Geygerle Companies under Neumann-Bailey auspices was considered. Negotiations in fact were well advanced when in July of that year the project fell through and the Cloverfield directors then decided to close down the mine. The issued capital of the Cloverfield Company is £355,000. It was announced in November, 1910, that there had been advanced to the company £39,000 and that the lenders had not exercised their option over 30,000 shares at par. Since that date affairs on the further East Rand have, of course, greatly improved. The policy of the Cloverfield Board has been to await developments, and they surely have every reason to be pleased with what has taken place in adjacent properties since the Cloverfield shaft was closed down. Whether the project of amalgamating Cloverfield, Welgedacht, and Geygerle will be revived or not remains to be seen. The three properties united would constitute a vast proposition—one of the largest in point of area on the whole Witwatersrand. Cloverfield, however, constitutes a large property in itself and it is probable that operations will at no far distant date be resumed there, even if no fusion arrangement is arrived at with the Welgedacht and Geygerle Companies.

#### OTHER MINES AFFECTED.

Numerous other areas naturally have been influenced by the succession of good results secured in the Modderfontein-Geduld-Brakpan area. As a consequence, the Brakpan Government lease again assumes a large measure of present-day importance, and East Rand Centrals and the mining areas on Selous must be again attracting attention. The Geduld Deep block of claims appears too to possess much greater possibilities than were assumed for it a little while ago. The Greatyle Proprietary Mines under Lewis & Marks' control will no doubt consider a comprehensive scheme of development and Daggafontein (a property comprising 9,238 acres) must also be reckoned a prospective producer within the next few years.

#### WATER TROUBLES.

A great drawback to this portion of the Witwatersrand has been the large quantities of water encountered. Shaft sinking and development operations have been greatly hampered thereby, and it seems that the aqueous nature of the strata in this part of the Rand is likely to cause mines operating there much trouble in the future. For this reason the suggestion that a co-operative pumping scheme should be arranged by the several companies operating in the watery area appears to have much to be said for it. In Staffordshire, such a scheme has given good results, and in Cornwall certain mines have at times been kept at work on costly pumping operations simply to prevent water finding its way into adjacent mines working at a profit. This, of course, was only rendered profitable through the fact that the shareholders in all these mines were virtually the same.

people. On the further East Rand there is not the identity of interest obtaining in Cornish mining, and the idea of forming a co-operative pumping board apart from the value of such an establishment to the mines concerned could very well be given a further useful effect in supplying Johannesburg, Germiston, Boksburg, and Benoni with water. At

any rate there appears to be much in the suggestion that is worthy of consideration. No doubt when the more distant mines of the Further East Rand commence working on the large scale which it is almost certain they will be operating on in a few years' time, the idea will receive the attention it deserves.

## ACTIVITY AT BARBERTON.

### The Turn of the Tide at the Sheba—A Field with Attractions for the Small Mine Element.

AFTER several years of moribund development and production, the Barberton district is again giving evidence of prosperity. The output of gold produced by mines, reef and alluvial diggers and tailings works in the Barberton mining area for the month of July last was 7,110 fine ozs., valued at £30,201. This was made up as follows:—Mines, 6,815 ozs., value £28,950; reef diggers, 108 ozs., value £458; alluvial diggers, 170 ozs., value £722; tailings works, 14 ozs., value £61; miscellaneous, 2 ozs., value £10. Development, too, is being undertaken energetically, the following footages being achieved during the month:—Main drives and cross-cuts, 1,545 feet; main shaft sinking, 40 feet; other development, 471 feet. There were 19 rock drills at work and 24,609 tons of rock were hoisted.

#### THE SHEBA'S IMPROVEMENT.

Revival of interest in the Barberton district has, in the main, been due to two things, firstly, the much better returns secured by the Sheba of late and the return of this, the oldest mine in the district, to the dividend-paying stage, and, secondly, the success that has attended the operations of a number of syndicates, tributors and small mine workers in the De Kaap Valley and elsewhere in the Barberton mining area. The Sheba, after thirteen years' absence from the dividend list, recommenced the distribution of profits last year, and for the first six months of 1912 paid out 10 per cent. on the reduced capital of £269,738, or a dividend of £26,974. The mine is, on its July showing, earning a profit at the rate of close on £60,000 per annum, the results for that month being:—Gold recovered, £13,550, or 41s. 8d. per ton milled; working costs, £8,730, or 26s. 10d. per ton; working profit, £4,819, or 14s. 10d. per ton. In addition, there was won from the Rosetta mine, in which the Sheba and the African and European Investment Company are jointly interested, £433. The Sheba twenty years ago was one of the most famous and profitable concerns in the Transvaal, and to date this company has produced gold of a total value of three millions sterling. In 1896 the company distributed £127,300 amongst its shareholders, the yield being as high as over £9 per ton. But the company then commenced to fall on evil days. In the succeeding year the grade fell to £6 10s., and in 1898, when the company paid what was to be its last dividend for many a day, the yield per ton was 55s. 5d. After the conclusion of the war a restart was made with sixty stamps, but from August, 1902, to September, 1903, when 115 stamps were in operation, the mine expenses about equalled the value of the gold recovered. Very poor ore was treated, and fewer stamps were in operation in the second half of 1904. In the next year slight improvement was shown. Then new discoveries were made, and the outlook appeared brighter. But it was only a flash in the

pan. During the years 1907 and 1908 there was a heavy fall in the grade, and in the 1909-1910 period only from 30 to 60 stamps were in operation. Last year, however, a real improvement was manifested, and the scaling down of the capital from £1,200,000 in £1 shares to 1,200,000 shares of 5s. each has enabled the company, under the energetic management of Mr. H. B. White, to resume payment of dividends. Although the Barrett and Worcester have not manifested improvement in the degree that the Sheba has, both these properties continue to produce, and with the favourable natural facilities for cheap working existing at each, it is probable that the earning of small profits will be continued for some time to come.

#### MINIATURE MINES OF THE DISTRICT.

Barberton, although it has not engaged the attention of the small mine element to the extent that the Pilgrims Rest Fields to the north have done, possesses many attractions for the man with an all-round knowledge of mining work who is possessed of a certain amount of capital, and who is prepared to labour hard and long. In our last issue we gave a list of a productive mines in the Barberton district, which showed that, in addition to the Sheba (70 stamps), the Worcester (40 stamps), and the Barrett (direct cyaniding), there were the New Fortuna and Clutha properties, each running thirty heads, the Consort and Rosetta (20 stamps each), the Beaver Trap, Imperial, Komati Mines, and North Star, with 10 stamps apiece, the Ulundi 9 heads, the Agnes, Alpine, Benoni Venture, and Bingham (each with 5 stamps), the Coetstroom Tribute (direct cyaniding), and a number of small concerns operating less than three stamps each. Numbers of men who formerly occupied important positions on Main Reef mines are now operating their own propositions in the Barberton area, and doing very well. Their success has prompted others to form small tributing parties, and invest savings in likely propositions—a far more admirable idea than the throwing away of money on Stock Exchange wild-cat syndicates. Barberton, in fact, has all the makings of a really important miniature mine field, and this apart from the present excellent showing of the Sheba and its subsidiary concern the Rosetta. As with Pilgrims Rest, the Barberton mining district would, in any other country than the Transvaal, have more attention bestowed on it, and on the outputs declared by the mines of the district. As it is, the monthly return for the whole field appears altogether insignificant in comparison with the output of a single large Witwatersrand mine. Yet the present rate of output (over a third of a million per annum) is far from being unimportant. Perhaps we may best convey an idea of the measure of productive importance to which the Eastern Transvaal gold field has attained by stating that Barberton's present rate of production is about equal to that of all the mines in the Umtali, Salisbury, and Mazoe districts of Southern Rhodesia.

#### Jumpers-cum-Treasury.

The following cable has this week been despatched to the London agency of the Jumpers company:—The following is the result of the joint working of the Jumpers and Treasury mines during last month: 60 stamps, working 27 days, crushed 6,550 tons, yielding 1,690 ozs. fine gold from mill,

1,047 ozs. fine gold from tailings by cyanide, 129 ozs. fine gold from current slimes, 147 ozs. fine gold from accumulated slimes; total from all sources, 3,813 ozs. fine gold. Value of the output, £14,756. Joint profit for the month, £2,006. Position of joint gold reserve at end of last month, 880 ozs. fine gold.



## CAPE CHEMICAL SOCIETY: RECENT PAPERS.

### South African Radio-Active Minerals.

THE ordinary meeting of the Cape Chemical Society was held last week in the Chemical Laboratory of the South African College. The President of the Society, Dr. C. F. Juritz, occupied the chair, and among others there were present, Prof. Hahn, Prof. Marloth, Prof. Van der Reit and Dr. Zietz. Dr. Hahn read an interesting paper on "Thoracic dioxide in South African Monazites" of which the following is a summary:—

The minerals containing the rare earths have been considered up to the end of last century only from a purely scientific point of view, because they had been observed only in very few localities and were rather difficult to obtain. The nature and composition of these minerals had been principally investigated by Swedish and Danish chemists. When the use of some of these earths in the manufacture of incandescent lamps became known, the investigation of minerals received a powerful impetus, and it was soon found that their occurrence was by no means limited to Norway and Sweden, and in the United States as well as in South America large deposits of these minerals were discovered. Of those minerals is of special interest the mineral monazite. In every handbook on mineralogy we find a description of this mineral: It is essentially a phosphate of ceric and lanthanic sesquioxides. The value of the mineral, however, depends upon the amount of thoracic dioxide which occurs in monazite from 0.1 per cent. to 9 per cent. Up to 1895 most monazite was obtained from Norway and from North and South Carolina in the United States; since 1895 Brazil supplied the demand of Europe. Production in the United States was: 1893, 59 tons, value £1,600; 1894, 340 tons,

£9,500; 1895, 862 tons, £24,000. 1896, 8 tons, £175, 1897, 18 tons, £210; 1898, 23 tons, £235. During 1895-1898 Brazil exported 5,350 tons. As the production of monazite rapidly increased the price of thorium nitrate went down.—1894, £100 was paid for one kilogram of thorium nitrate; 1895, £32; 1896, £3 10s.; 1898, £2; 1900, £1 8s. Since 1900 the price has remained the same. Already in 1896 small quantities of monazite had been observed, together with some other rare minerals like fergusonite and a schynite in the alluvial tin ore deposits near Embabaan in Swaziland, in 1905 monazite was found in Houtenbeck in the Transvaal, together with fluor spar. The monazite of these two localities has been investigated as to the amount of thoracic dioxide and as to its radio activity by Mr. R. Hallack, assistant in the chemical department, South African College. The monazite of Houtenbeck was found to contain in two samples 3.23 per cent. thoracic dioxide, and the monazite from Swaziland 6.66 per cent. dioxide. The latter sample we received from Mr. R. N. Kotze, the Government Mining Engineer, Transvaal. Mr. Kotze also sent us an interesting sample of euxenite containing in two specimens as much as 1.54 per cent. and 2.04 of uranic oxide. The monazite from both localities we found strongly radioactive as also the euxenite. It is interesting to note that the intensity of the radio-active effects of the different kinds of monazite is in proportion to the percentage of thoracic dioxide, which the minerals contain. The paper was admirably illustrated by means of specimens of monazite and euxenite (another radio-active mineral) from Houtenbeck (Transvaal) and Embabaan (Swaziland), and by radiographs taken by the light emitted by these minerals.

### Piggs Peak.

The following is the result of operations for the month of August, 1912, viz.:—Running time, 29 days; crushed 3,300 tons yielding 581.88 ounces fine gold; cyanide works treated 2,887 tons, yielding 344.2 ounces fine gold; concentrates shipped, 3,564 tons, containing 96,584 ounces fine gold. Concentrates on hand contain 200 ounces fine gold; total recovery, 1,222 ounces fine gold, estimated value £5,194. Total cost, £2,037. Estimated profit, £3,157.

### Brakpan Mines.

The following information with respect to the August output is officially supplied:—Stamps working, 150; running time, 28 days; ore crushed, 56,850 tons; tube mills working, 7; ore hoisted, 66,230 tons; ore from dump, 1,595 tons; waste sorted, 14.56 per cent.; fine gold declared, 21,928 ozs.; value declared, £92,204, equal to 32s. 5d. per ton milled; working costs, £51,821, equal to 18s. 3d. per ton milled; working profit, £40,383, equal to 14s. 2d. per ton milled.



CONSOLIDATED LANGLAAGTE: GENERAL VIEW, SHOWING NEW MILL

## THE DE BEERS—VOORSPOED AGREEMENT.

### "Impossibility of Profitable Working"—The Future of the Mine.

THE official details of the provisional agreement entered into between the De Beers Consolidated Mines and the Voorspoed Diamond Company, are printed below, and complete details of the arrangement and the future status of the Voorspoed Company and its shareholders are promised at an early date. The directors of the Voorspoed Company acknowledge "impossibility of profitable working," and it may seem, on the face of this statement, strange that the De Beers Company should have agreed to issue obligations at the rate of 12s. 6d. per Voorspoed share, bearing interest at the rate of  $4\frac{1}{2}$  per cent., should have taken over the loan of £120,000, and paid the company the sum of £20,000. Whilst it is understood that the intention of the De Beers Company is to continue a policy of inactivity at the mine—for a time at any rate—it is probable that "the impossibility of profitable working" might be qualified by a statement to the effect that such impossibility has been largely the result of the method of working that has so far obtained. Although at one time the De Beers Board might have regarded the Voorspoed Company as a possible, if not probable, upsetting factor in the control of the Diamond Market, the returns announced by the Company during the past year or two must have made it abundantly clear that the Voorspoed Mine was not likely to disorganise the arrangement made by the Diamond Syndicate for control of the price of South African gems.

Perhaps the De Beers Company may await a favourable opportunity, and at an early date reopen the mine and resume production of diamonds. Some hold the view that the

mine is capable of better things than the returns to date have indicated. The policy of the management in regard to the payment of rewards to natives has, for instance, been described as niggardly, and it has been suggested that more liberal bonuses would have resulted in substantially better returns.

Whether this charge is just or not we do not pretend to say. The fact remains that after consultation with the larger shareholders, the directors have agreed to cede the property to De Beers, and it remains to be seen what policy the great Kimberley organisation will adopt in regard to their latest purchase.

The following official statement has been issued by the Voorspoed Diamond Mining Company, giving the terms of the provisional agreement entered into for the disposal of the property to De Beers Consolidated Mines. As stated in the provisional notice published on the 5th of August last, the mine was shut down on the 3rd of August. Heavy losses incurred in working, left the company financially embarrassed, the loan of £20,000, provided by the lenders of the original loan of £100,000, having been exhausted. This fact, coupled with the impossibility of profitable working, made closing down unavoidable. After consultation with the larger shareholders, the directors have provisionally agreed to the disposal to De Beers Consolidated Mines, Ltd., of the property and rights of the Voorspoed Company, on terms which provide *inter alia*: 1. For the issue by De Beers Consolidated Mines, Ltd., of obligations at the rate of twelve shillings and sixpence per Voorspoed share bearing interest at the rate of  $4\frac{1}{2}$  per cent. per annum, as from the 1st of January, 1913, as a charge on the property of De Beers Consolidated Mines, Ltd. 2. For taking over by De Beers Consolidated Mines, Ltd., of the loan of £120,000 owing by the Voorspoed Company, as from the 1st of July, 1912. 3. For the payment by De Beers Consolidated Mines, Ltd., of £20,000, which sum has meanwhile been received. Complete details will be submitted to shareholders at as early a date as possible.

### Sub Nigel.

From the Manager's report for the year ended June 30, we take the following:—Underground: "B" vertical shaft was closed down at the end of September. All rock from "B" Incline shaft is now trammed through the 11th level to "C" shaft and hoisted to the surface. From the bottom of "E" incline winze a drive was advanced westwards, to prospect the area between the east and west dyke and the large dyke running in a north-easterly direction, in which most of the incline shaft and winze is sunk. These dykes, apparently, intersect near the bottom of the incline winze. This drive was stopped at 237 feet, having been in dyke the whole way. From the end of this drive a borehole was put in, and at a further distance of 140 feet passed out of dyke into quartzite. This work was then temporarily discontinued. The widening of the incline winze to admit of two hauling-tracks and a ladder-way is now nearly completed. The shaft will then be sunk at a steeper angle to encounter the downthrown portion of the reef below the east and west dykes. At the same time, the prospecting drive will be advanced to exploit the area between the two dykes. The extension of the east and west dykes into "B" incline shaft has not been encountered in its expected position. It will, in all probability, be necessary to sink the incline shaft a further 400 feet and open up another level. Development in our present lowest level in this shaft has shown promising results. The water-pipe system for the allaying of dust throughout the mine is being conscientiously used, with a resulting marked improvement in underground health conditions. Careful attention has been paid to obtaining increased sorting of waste both on surface and underground, as shown below:—Average stoping width for year ended 30th June, 1911, 39·12 inches; per cent. waste sorted out, 18·31 per cent. Average stoping width for year ended 30th June, 1912, 39·98 inches; per cent. waste sorted out, 30·35. An improved efficiency has been obtained in the breaking of rock in stopes. The figures for the past year are:—Ham-

mer boys, '082 fathoms per native shift; small machines, '669 fathoms per machine shift; large machines, '776 fathoms per machine shift. Surface: The surface plant generally is in good running order. Some of the piles in the battery are deteriorating rapidly, and will have to be replaced by concrete during the present year. Repairs to the wooden sand-collecting vats will be undertaken at the same time. A new engine house has been erected at "C" shaft out of old material at "D" shaft, and improvements have been made in the white and native change-houses. A small pump has been installed near the slimes dam for returning solution to the cyanide works. The capacity of the coal bunkers at "C" and "E" shafts has been considerably increased. I wish to record my high appreciation of the services of the staff, who have worked loyally and well.

### Rooiberg.

The following are particulars of estimated results of operations on the Rooiberg Minerals Development Company's property:—Stamps, 10; days run, 29; tons milled, 3,105 short tons; concentrates, 95 long tons; average assay value metallic tin, 69·92 per cent.; estimated profit, £5,716; adjustments due to fluctuations in the price of tin to be deducted in respect of April shipments, £84; net profit for month, £5,632 3s. 6d. Concentrates in reserve at the 31st of August amounted to 17·33 long tons (2,240lb.) of the net value of £1,616. £2,502 has been included in working costs for the month in respect of shaft sinking, exploration and mine development. Tonnage milled includes 1,360 tons sands.

### Glynn's Lydenburg.

The following are the results of operations for August at Glynn's Lydenburg: Tons crushed, 3,268; yielding 1,772 ozs. fine gold, valued at £7,211. Estimated profit for the month, £3,563.



## DISSOLVED ACETYLENE: ANOTHER NEW RAND INDUSTRY.

### Generating and Compressing Plant to be Erected.

IN our issue of July 13th we announced that extensive works were about to be erected at the New Transvaal Chemical Works by the British Oxygen Company, Limited, London, for the production of pure oxygen by the liquid air process, and we referred in this connection to the high pressure system of oxy-acetylene blowpipe welding, in which oxygen is supplied from an ordinary trade cylinder, and acetylene from a cylinder in which it is dissolved in a porous material soaked in acetone. This is what is known as dissolved acetylene, and we now learn with interest that by arrangement with the Acetylene Illuminating Company, Limited, of South Lambeth Road, London, which works in close association with the British Oxygen Company, dissolved acetylene is about to be introduced on the South African market for use in the various purposes to which it can be applied. We are informed that the first generating and compressing plant is already on order, and will shortly reach the Rand under charge of a thoroughly skilled and experienced expert in the manufacture and compression of the gas. Dissolved acetylene is clean, dry, pure acetylene stored in light steel cylinders under a moderate pressure. Before being charged with acetylene, the cylinders are filled with a porous material in the form of cement, and then baked in a stove. This process hardens the cement into a brick, from the pores of which all air is exhausted and replaced by a known quantity of acetone. Acetone is a liquid hydrocarbon which has the property of absorbing or dissolving many times its own volume of acetylene. This property is taken advantage of in the process of compressing. The result is that at a nominal pressure of 150 lbs. to the square inch (or ten atmospheres) it is possible to store a hundred times the cylinder's own volume of available acetylene, and it may here be appropriately pointed out that all cylinders in the course of manufacture are tested to a water pressure of 800 lbs. per square inch. In use, immediately the cylinder valve is opened, the acetone commences to give off dry, pure, clean and cool acetylene, and will continue doing so until the contents of the cylinder are exhausted. In the manufacture of dissolved acetylene the gas is generated in the ordinary manner—in bulk—and before it is pumped into the cylinders it is thoroughly washed, dried and purified, so that all impurities, such as sulphur, phosphorous, and ammonia are removed. The use of the porous brick is to ensure perfect safety. The compression of acetylene without porous material is illegal in the United Kingdom, but the safety of the system now adopted has been demonstrated in the fullest possible manner, not only to the satisfaction of the manufacturers, but to that of the Home Office, in consequence of which the Secretary of State for the Home Department issued an order recognising the safety of dissolved acetylene, and authorising its use. All cylinders in use in Great Britain and Ireland have a label affixed with the following wording:—"Acetylene compressed into porous substance exempted by order of the Secretary of State, dated 10th April, 1901. The Acetylene Illuminating Co., Ltd., 268, South Lambeth Road, S.W." And all cylinders which it is proposed to introduce into South Africa will bear the same label and guarantee.

We have already referred to the use of dissolved acetylene in autogenous welding, and it is this branch of its various forms of application that the sponsors of the new industry propose specially to cultivate, and they are for that purpose importing 200ft. cylinders, with blowpipes and all necessary accessories. Indeed, several complete outfits are already in the country, but it is considered inadvisable to place them on the market until the generating and compressing plant is erected and the recharging of exhausted cylinders made locally practicable. But there is another use for dissolved acetylene which will more directly appeal to a very large community outside the ranks of engineers, and

this may be now more particularly dealt with. One of the earliest applications of dissolved acetylene was to the lighting of motor cars. Many forms of acetylene apparatus have been essayed for car lighting, but none has given the same satisfaction and proved so adaptable. The troubles invariably associated with any acetylene generators are wholly overcome when dissolved acetylene is employed. The outfit is simple, both in form and handling. It comprises a dissolved acetylene cylinder, a combined pressure gauge and governor, a connecting block and stirrup, a cylinder key and a short length of  $\frac{1}{2}$ -inch steel tube. These fittings are supplied either with or without a box and form in themselves a complete equipment ready for service to lamps. The outfit can be clamped to any convenient part of chassis frame, or fixed underseat, or stand upright by the driver's seat, or it can be fitted in a variety of attractive boxes, either polished mahogany, oak, walnut, or teak, or plain wood, in order that the box shall match the car. This pattern has been standardised, and the capacity of the cylinder is 20 cubic feet, burning about one foot per hour. The cylinder is constructed of mild steel, hydraulically tested to 800 lbs. to the square inch, and filled with porous material, acetone and gas as required by Government regulations, and is fitted with a special steel valve suitable for use with acetylene, and so designed as to make the operation of coupling up with the stirrup connection simple, speedy, and effective. The pressure gauge on the front of the governor has two readings on the dial, the top one is atmospheres or kilogrammes of pressure, the lower one is the same reading converted into pounds per square inch. In the process of manufacture the cylinders are charged to 15 lbs. or 10 atmospheres. To gauge the contents of cylinders approximately all that is necessary is to read the pressure gauge in atmospheres and multiply by the index number of the size of cylinder, thus, pressure 4 atmospheres, 20ft. cylinder,  $4 \times 2 = 8$  cub. feet contents approximately; or, pressure 6 atmospheres, 50ft. cylinder,  $6 \times 5$  equals 30 equals contents in cubic feet approximately. The pipe service can be led to head lights, side lights, tail, and interior lights, and all the lights on a car can be served from the same cylinder. Solid drawn steel tube is recommended for service piping as the action of acetylene on copper and brass produces dangerous salts.

As compared with other forms of motor lighting, the advantages of the D.A. system are obvious and numerous. The gas can be turned on and lighted immediately, and can be turned high or low at will. It can be instantaneously extinguished without waste of gas. The pressure is constant, being regulated by the governor. So long as there is gas in the cylinder the light never tails, does not blow out, and is always steady, no matter how many lamps are served. The extreme purity of the gas prevents choking of burners—in consequence burners do not wear out—and smaller burners can be used, entailing considerable economy in consumption, whilst the light is far more brilliant than that of acetylene as supplied from any generator. The disagreeable odour associated with acetylene is entirely removed by purification and is, therefore, totally absent from dissolved acetylene. No cleaning out is needed, as the handling of carbide and water takes place at the works before the gas is pumped into the cylinders. There is no water, and consequently no freezing, and there is absolutely no danger such as in the use of carbide. It should be observed that whilst any other lighting apparatus is considered as useless or worn out after two or three years, the D.A. lighting set is practically indestructible, as the principal part of it (the cylinder) is always new, being exchanged for absolutely. The running cost is low in comparison, as there is absolutely no waste (a most important factor), and for this reason alone a dissolved acetylene outfit is a sound investment. The use of dissolved acetylene saves the lamps from corrosion and the reflectors, etc., from getting hazy and discoloured.

—effects often produced by uneven flame and impurities given off during combustion of crude acetylene. Thus the life of lamps is considerably lengthened. After considerable experiment, cylinders of a size suitable for use on motor bicycles have now been manufactured at the Acetylene Illuminating Company's London works, and these cylinders, at a price which will bring them within reach of all motor cycle riders, are also to be placed on the South African market, in all large towns and centres where the erection of acetylene generating and compressing plants is justified by the demand in the more important branches of the dissolved acetylene industry.

Finally, there remains the extremely interesting problem—for it is still only a problem—of the application of

dissolved acetylene to miner's lamps. It is an undoubted fact that the quantity of carbide wasted on the mines is in overwhelmingly undue proportion to the quantity of carbide used, and it is hoped in time to effect a big mining economy by the substitution of dissolved acetylene lamps for raw carbide. In response to representations made from South Africa the Acetylene Illuminating Company are now conducting experiments at their London works with a view to producing a lamp suitable to the requirements of this industry and fulfilling certain essentials which have been indicated. Appreciating the significance and importance of the suggestions conveyed to them they have intimated that they are prepared to continue these experiments until a solution is arrived at.

## WORKMEN'S COMPENSATION IN THE TRANSVAAL.

Address by Mr. Patrick Duncan—Some Points of Difference with English Law.

On Monday evening, Mr. P. Duncan, M.L.A., delivered an interesting address to the members of the Germiston Literary and Debating Society on the "Principles of Workmen's Compensation." In the course of his address he said that, to anyone taking an interest in public affairs, workmen's compensation ought to be considered one of the most important branches of the relation between employer and employee. The Workmen's Compensation Law in this country was practically adapted from the English law. How did that law grow up? Before 1897 there was no workmen's compensation as we understand it, but a Limited Liability Act, since 1880, of far more limited scope; and the relations of master and man were practically regulated by common law—in England a body of legal doctrine standing apart from the statutes of the country, and in South Africa called the Roman-Dutch law. The common law laid down that workmen had no remedy against employer unless he was guilty of negligence. Negligence was a term that required definition. It had been defined by many judges in England under common law that it was the employer's duty to carry on business or work in such a manner as to expose his workmen to no unreasonable danger. Therefore, under common law, a workman was not guaranteed against accidents; merely against negligence to keep plant, etc., in a safe condition. This provision was further attenuated by the law that a workman could not claim if guilty of contributory negligence, whether the employer's guilt in this respect were proved or not. In addition to all these disabilities, said the speaker, he was further hampered by the strange law of the "Doctrine of Common Employment," a point in common law which still further narrowed his chances of recovering compensation, by absolving the employer of all liability where the accident was due to the carelessness of a fellow-workman. Consequently the urgent need arose of giving workmen rights which they did not enjoy under common law, which, as the lecturer amusingly remarked, was not always common-sense. The first step in workmen's compensation was to make the employer liable for the acts of his agents. The Act of 1880 did not extend insurance to accidents. It merely widened the area of an employer's negligence. This was reserved for the Act of 1897, which for the first time laid down that an employee was insured against accident, whether caused by negligence or not. It was considered so revolutionary at the time that its application was at first confined to a few employments and gradually extended. The last English Compensation

Act of 1906 extended the principle to every employment. Turning to South Africa, the speaker said that there was an important difference in the application of the principle here, in that it was confined to white persons only. This raised a very serious question. In the first place, it could be argued to constitute a premium on the employment of natives in preference to whites. Of course, it was not reasonable to apply the same standard of compensation to whites and natives. But he did believe there should be general compensation proportionate to the value of the work. In principle he would make no difference in the compensation to be paid to black and white provided they did the same work. The Transvaal also differed from the English Act in the payment here of compensation in a lump sum, as against a weekly or monthly allowance in England. But the greatest divergence of all, and the most important, between our law and the English, one was in its application to industrial diseases. This naturally led to a consideration of miners' phthisis as an industrial disease. In the last session of Parliament provision was made for this disease. Liability was divided into two funds. One to deal with immediate cases, and the second with those arising after two years from the passing of the Act. The first fund was levied wholly on employers, with a contribution from the State. The workman contributed nothing to the fund. The second fund was to be provided on a basis of 5 per cent. of the workman's wages, divided equally between employer and employee, to be raised after two years to  $7\frac{1}{2}$  per cent., the employers sustaining the increase. This, continued the speaker, introduced a principle not to be found in the English law. Under the latter industrial diseases were treated as accidents, workmen contributing nothing. Here, on the contrary, in the cases arising after two years, the workmen contributed a substantial part. In extenuation of the contributory principle, Mr. Duncan said that miners' phthisis was a disease which had been allowed to grow to such an extent as to threaten the industry, and in laying down the amount and the method of compensation regard was needed to the demands which they could fairly meet. Parliament had worked very largely in the dark. Nobody knew the extent of the demands which would be made in future under this Act, and what effects the increase of the application of the principle would have. Personally he considered that the Act was not in its final state. When facts got fairly established Parliament would be able to deal with it in a permanent form. The ultimate course of workmen's compensation for industrial diseases, he believed, would be towards the non-contributory principle.

### Worcester Exploration.

The Worcester Exploration and Gold Mining Company's report on the August crushing is as follows: Running time, 24:38 days; tonnage crushed, 4,500 tons; yield from mill, 779:528 ounces; yield from cyanide, 130:248 ounces; total yield, 1,209:776 ounces, valued at £5,111 6s.; approximate profit, £1,260. The new catamaran power was started on the 3rd inst., and is running satisfactorily.

Mr. James Gunson Lawn, acting on behalf of the Consolidated Langlaagte Mines, Ltd., of Johannesburg, the owners of mining titles situated on the farm Langlaagte No. 13, in the mining district of Johannesburg has made application for the right to lay an electric haulage for the purpose of conveying ore and waste rock.

### Iron Ore on Pretoria Town Lands.

Under date 6th June, Mr. J. Connolly, Zuurfontein Foundry applied for permission to obtain 200 tons of hematite iron ore from the farm Groenkloof. The Pretoria Town Council agreed: That the application of Mr. Connolly be granted on the following conditions, viz.:—(a) That he pays the Council a royalty of 6d. per ton on each ton of ore removed by him according to the weights given by the railway. (b) That the ore shall be won from a site to be pointed out by the Town Engineer and all operations shall be carried out on such conditions as shall be imposed by him. (c) That the applicant furnishes a guarantee acceptable to the committee to fill up all excavations made by him and to leave the ground in a state to the satisfaction of the Town Engineer.



## PHOTOLYSE.

**A New Automatic Process for the Extraction of Precious Metals and Others from Metallic Solutions by Professor Gaston Jacquier, B.Sc., Patented 1910.**

### PLANT (According to Drawing).

The plant consists of (1) a collecting tank of a size proportionate to the number of tons of solution poured after each clean up; (2) several small tanks in concrete or wood, 0.60c. in depth, two metres in width, and a length proportionate to the quantity treated; (3) wooden frames on which aluminium sheets, 60c. x 100c., are suspended; (4) false bottoms in aluminium 2m. x 2m. broad; (5) strainers lined with aluminium 2m. x 2m. broad; (6) funnels lined with aluminium of same size as the strainers; (7) railings for moving the strainers, false bottoms and wooden frames from one tank to another; (8) pulleys on wheels for lowering and raising the apparatus above; (9) taps on each tank to drain off the exhaust solution; (10) aluminium sheets, 60c. x 100c. and 2mm. thick, suspended from the frames at equal distances of about 50c.—the sheets can easily be removed from the frame to be scraped; (11) glass shed covering the small tanks; (12) revolving brushes for scraping the aluminium sheets.

### COST OF PLANT.

The cost of the plant, as drawn below, is very small. It consists of ordinary tanks in concrete or wood (lined with aluminium sheets) of a size proportionate to the quantity of solution treated. Hot water being employed in the dilution, the number of tons of solution per ton of zinc will amount to about twelve instead of forty with cold water. The alumi-

nium sheets, being of 2mm. thickness, do not represent at the present price of the metal.

### WORKING EXPENSES.

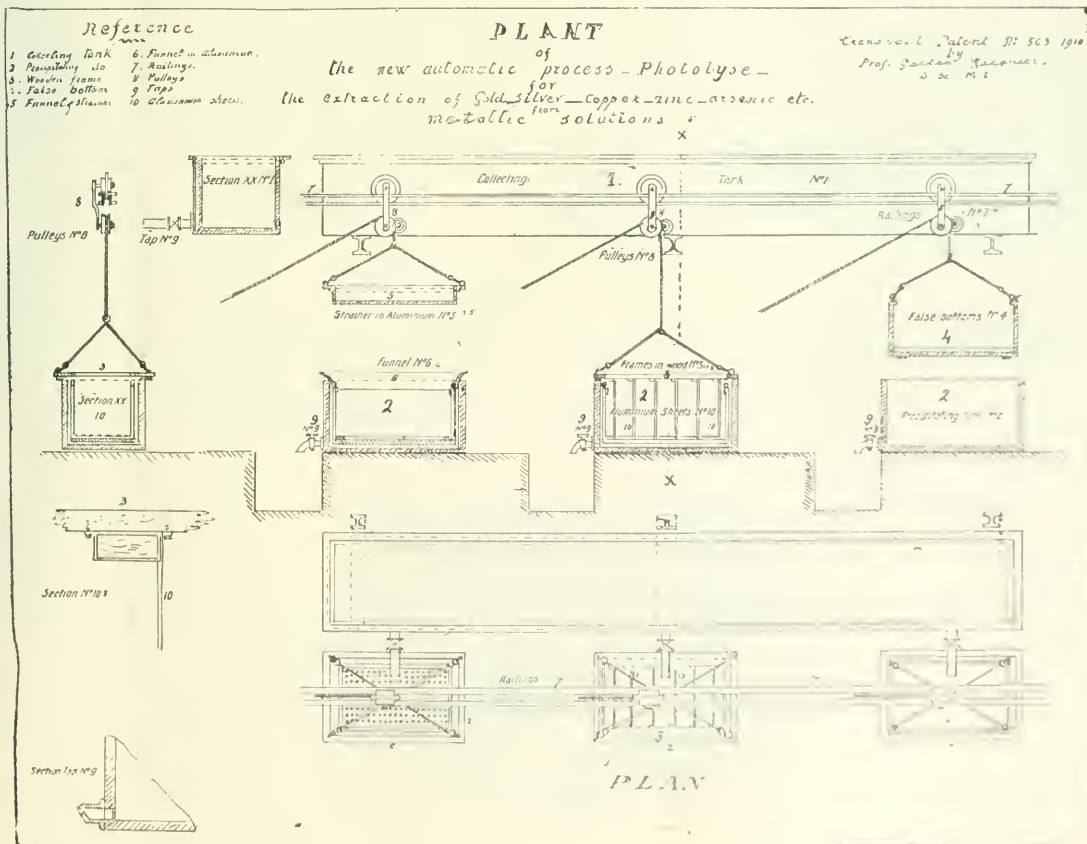
The working expenses are minimal. The process requires no power, no chemicals, and being automatic, demands no skilled labour. It can be managed by the tyndal staff. It has been proved that there is no loss of aluminium during the process.

### HOW THE PROCESS IS WORKED.

For zinc-sulphate, copper-sulphate, arsenic-sulphate solutions, etc.: (1) The hot solution having been collected in the large tank, must be treated immediately after each clean up. (2) the false bottoms are lowered into the precipitating tanks. (3) the solution is poured through the strainer into each tank to be aerated; (4) the aluminium sheet frames are put in position exposed to the sunlight; (5) it must be verified by compass every day that the aluminium sheets are at right angles with the magnetic needle.

### PRECIPITATION OF THE PRECIOUS METALS.

(1) In twenty-four hours, more or less, if there is sunlight, all the gold and silver contained in dissolution are precipitated on the aluminium sheets in a pure state. (2) the aluminium sheet frames are raised and carried along the rail into a shelter, where the precious metals are scraped



from the sheets after they have been loosened; (3) after the aluminium sheets have been cleaned up, they are again fixed to the frames and lowered into the tanks.

#### PRECIPITATION OF THE ZINC OR COPPER, ETC.

(1) After three or four days, more or less according to whether very hot or lukewarm water has been employed, the

zinc or copper is deposited on the aluminium sheets in a white and chemically pure crystal; (2) the aluminium sheets are carried out and all the zinc or copper scraped off; (3) the exhausted solution having been taken out, the false bottoms are raised, and any gold which has been deposited by settling, together with other metals contained in the solution, is taken out and treated separately.

## THE YEAR WITH THE SIMMER AND JACK.

### Working Profit, £529,944—Strong Position of Ore Reserves—Sand-Filling Advantages.

The working profit earned by the Simmer and Jack for the year ended 30th June, 1912, after allowing for the expenditure of £2,070 19s. 4d. on renewals and replacements of machinery, plant, buildings, etc., amounted to £529,944; sundry revenue amounted to £33,247; making a total of £563,191. The estimated profits tax, French Government duty and stamps, and amounts written off were £51,836. The amount credited to appropriation account was, therefore, £511,355, which, with a balance at credit of appropriation account at 30th June, 1911, of £80,104, made up £591,460. The amounts appropriated for dividends Nos. 10 and 20 of 7½ per cent. each, declared during the year, were £450,000. The amount set aside as a further provision for additions to and renewals of machinery and plant was £22,500; less £2,070 expended on renewals and replacements of machinery and plant and charged to working costs thus leaving a balance at credit of appropriation account at 30th June, 1912, of £121,031.

Mr. J. W. Craig, the Acting Superintending Engineer, writes:—The ore reserves at 30th June last are estimated at some 2,680,000 fully developed payable milling tons of an average assay value of 6.2 dwts. per ton, in addition to which there are some 438,000 tons of partially developed ore of an estimated average value of 5.3 dwts. Besides this reserve, there is a considerable tonnage available for stoping from the upper levels, and from foot and hanging walls of old stopes, which will be credited to the ore reserves as the ore is mined. Sand filling of worked-out areas has been so successfully carried out on a comparatively small scale during the past two years that it has been decided to extend the system. To this end plant is now in course of erection, which will render it possible to lower into the old workings about one-half of the sand produced by the reduction plant. In addition to the great advantages of safer working and more efficient control of underground ventilation, it is expected that this system will result in actual increase of profit through reduction in costs and the recovery of good ore now unavoidably left as pillars.

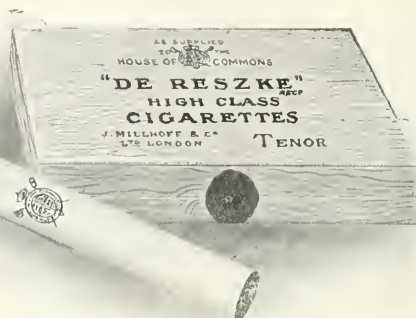
#### MANAGER'S REPORT.

Mr. O. P. Powell, the manager, writes, *inter alia*:—Crushing.—Average number of stamps running 320, tons mined 922,621, stoped and developed 528,828, reclamation 393,796, percentage of waste sorted out 7.15, tons milled 863,500, days milling 356,182, tons milled per

stamp per day 7.45, average number tube mills working 7, days milling 350,439. The development footage for the year was 4,566 feet, as per summary:—Driving 1,474½, raising 813½, winzing 1,020, cross-cutting 1,258; total, 4,566 feet. Shaft Sinking.—During the year shaft sinking was done as follows:—No. 2 Auxiliary Incline Shaft, 90 feet. Details of Working Expenses.—Mining expenses, £305,078 3s. 5d., cost per ton milled 7s. 0.794d.; development, £12,334 15s. 9d., cost per ton milled 3.428d.; transport of ore and sorting and crushing £17,456 17s. 4d., cost per ton milled 4.852d.; milling 41,067 11s. 8d., cost per ton milled 11.411d.; tube milling £26,776 4s. 8d., cost per ton milled 7.142d.; sand expenses £42,139 14s., cost per ton milled 11.712d.; slimes expenses £20,852 19s. 10d., cost per ton milled 5.796d.; general charges £43,744 3s. 5d., cost per ton milled 1s. 0.158d.; expenditure on renewals and replacements of machinery and plant £2,070 19s. 4d., cost per ton milled .376d.; total amount £511,321 9s. 5d., total cost per ton milled 11s. 10.172d. Ore Reserves.—The estimate of payable milling ore developed at 30th June, 1912, is 2,680,000 tons of an average of 6.2 dwts. Plant.—During the year the following additions and improvements were made to the plant:—A magnetic separator was installed in the tube mill circuit; the slimes pump was increased by two 70 ft. treatment vats and one 50 ft. collecting vat with necessary piping, launders, etc.; runways were installed in the workshops; the pebble bin at the mill was extended; alterations in respect of circulating slime pulp were effected. Sand Filling.—During the past two years, current sand residues have been lowered into the mine for the purpose of filling worked-out areas, and permitting the removal of ore left as pillars, etc. The underground conditions at the mine being particularly favourable for economic carrying out of these operations, it has been decided to rearrange and enlarge the existing plant, and a new borehole has been sunk to a depth of 327 feet and an old disused shaft brought into commission for the lowering of the sand. That portion of the worked-out area lying under the railway is being filled in on instructions received from the Mines Department.

### Robinson Group.

The following are the results obtained by the Robinson Group for August:—Langlaagte Estate: Tons milled, 53,834; total yield, 15,106 ozs.; estimated profit, £16,510; profit per ton milled, 6s. 14½d. Randfontein Central: Tons milled, 206,037; total yield, 62,521 ozs.; estimated profit, £80,992; profit per ton milled, 7s. 10.31d. Total tons milled 259,871; total yield, 77,630 ozs.; estimated profit, £97,502.





## THE PRESENT POSITION OF THE VAN RYN.

### A Long and Honourable Record.—Solid Character of the Ore Reserve Account—Profits for the Last Financial Year.

With the New Kleinfontein and the Modderfontein the Van Ryn has had the distinction, and, it may be added, the merit of having kept alive the faith in the far East Rand of that portion of the investing public who have never ceased to feel confidence in the future productivity of an area which has latterly come so much into public favour. The Van Ryn has a record behind it which cannot fail to appeal to those who recognise the value of solid consistent performance, and it was with a clear sense of the importance of a record of this kind that Mr. Leopold Albu made the following remarks, *inter alia*, in seconding the adoption of the accounts at last year's annual meeting of the company:—"Your statement of the position and affairs of the company," said he, addressing the Chairman, "is so lucid, and in every detail so instructive as to leave no one, not even the most exacting, in any doubt about it. But if anything had been left in doubt the actual performance of the company for the past nine or ten years speaks louder and far more effectively than anything that can be stated either by the Chairman or myself, and should impress shareholders and the investing public with the soundness of your undertaking. If it is remembered that the company has stood the test of the most critical periods during the past sixteen years that any individual undertaking could have ever had to contend against, then, gentlemen, we have every cause to look forward with the utmost confidence to its future career. . . . We have every reason to feel assured of a further long and prosperous career, and, with an ample and more settled labour supply, we may look forward to even larger outputs and still higher dividends. . . . On a capital of £500,000 (increased from £100,000 in 1902), the company has produced gold to the value of three and three-quarter millions, resulting in a profit of £1,836,000, out of which £1,200,000 has been paid to shareholders, and the greater part of the balance on development and plant. . . . These few figures mark the Van Ryn as a gold mining enterprise of exceptional standing, and, as far as it is possible to judge to-day, there is every reason, as I said before, to feel assured of a further long and prosperous career."

It is unnecessary to do more than glance at the following tabular statement of the returns from the Van Ryn for

the past twelve months to perceive that the steady progress in the past has been successfully continued.

	Stamps	Tons Milled.	Recovery per ton Milled.	Working Costs p. ton Milled.	Profit per ton Milled.	Total Profit.
			s. d.	s. d.	s. d.	
1911						
July . . .	120	37,510	27 7	14 11	12 8	£28,634
August . .	120	37,500	27 10	15 6	12 4	23,006
Sept. . . .	135	37,070	28 7	15 11	12 8	23,129
Oct. . . . .	135	39,020	28 4	15 4	13 0	25,255
Nov. . . . .	135	36,680	28 4	15 4	13 0	24,385
Dec. . . . .	135	39,510	27 4	14 10	12 6	25,011
1912.						
Jan. . . . .	135	39,200	28 0	15 2	12 10	25,188
Feb. . . . .	125	37,500	27 7	15 6	12 1	23,030
March . . .	125	39,700	27 11	15 3	12 8	25,051
April. . . .	125	38,650	26 7	14 11	11 9	22,513
May . . . .	125	39,640	27 1	15 11	12 2	24,077
June . . . .	125	37,760	28 6	16 6	12 6	23,985
July . . . .	130	40,270	26 11	15 4	11 7	23,419

The question of ore reserves is one which must of necessity be discussed in considering the position of any mine, and it is gratifying to remember that at the end of the financial year ending June 30th, 1911, there were over a million and a half tons of payable ore developed, or more than a three years' supply, every ton of which had been paid for out of profits, so that working costs were then only charged with the actual cost of developing ore to replace the current crushing. The ore reserves at the end of the year ended June 30th, 1912, amounted to 2,000,000 tons, of a value of 61 dwts., or an increase of £100,000 on the previous year, without any diminution in value. A notable circumstance in connection with the elevated value of the reserves at the Van Ryn is that they have for 1912 per cent. been exceeded by the value, a fact which indicates, as was pointed out at the last annual meeting, a conservative tendency on the valuation of the mine. The working profits for the past year, exclusive of sundry revenue, were £285,205. The annual report, giving full details, is expected to be issued shortly.

### Silver-lead and Tin Mining in German South-West Africa.

A company has been formed in Hamburg for the purpose of exploiting the silver-lead deposits stated to occur about 75 kilometres from the railway station El Karas, on the Seeheim-Kalkfontein line, in German South-West Africa. The property consists of ten mining and four prospecting areas. A small part has been opened up, and 6,300 kgs. of development ores have been sent for treatment to Freiberg, in Saxony. The value ascertained there is said to have been M. 275 per 1,000 kgs., the assay results having been 67.6 per cent. lead and 2.152 grammes silver per 1,000 kgs. Very optimistic views are entertained by the promoters regarding the prospects of the property, which is described as bearing all the characteristics of the richest silver-lead occurrences at present known in America and Australia; but so far that description is not substantiated by any facts and figures. The tin deposits of German South-West Africa have now passed almost entirely into the control of English companies, chief amongst whom is the De Beers. The ore occurrences are said to be slightly less rich than these in the Transvaal, but they are believed to be of a more permanent character. The De Beers Company is going to work the mines on a large scale, and it is stated that in the near future thirty white men and 300 native boys will be em-

ployed. Scarcity of native labour has hitherto much retarded the progress of the development work, but it is hoped that the remedy for this drawback will be found in the introduction of Ovambo boys.

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## THE YEAR WITH PIGG'S PEAK DEVELOPMENT CO.

### The Question of Dividend—Profit Possibilities—A Ruby Creek Discovery.

THE ordinary general meeting of the shareholders of the Pigg's Peak Company was held at Salisbury House, London Wall, London, on Monday, the 19th day of August, 1912, to receive the directors' report and balance sheet, to elect a director in the place of the one retiring, to appoint an auditor, and for general business as authorised by the articles of association. Captain F. B. Lawson, Chairman of the Company, presided. The Chairman said: Gentlemen, you will see from the accounts, which are before you, that the company have again enjoyed a time of prosperity in that the year's working shows a net profit of £21,728 1s. 9d. Some of the shareholders may have at first felt disappointed that this was not appropriated for the payment of a dividend, but I am convinced that after a few moments reflection you will agree that the directors are well advised in pursuing a conservative policy and waiting until the financial position of the company is stronger, before commencing to distribute profits; and our position is getting so much stronger that I hope and believe the desired opportunity will not be long delayed when we shall feel justified in making such a distribution. As you are aware, too, we have a debenture issue of £25,570, and we feel that we should take advantage of the cash in hand to reduce this amount. The cash shown in the accounts as available and that received from profits since the accounts were closed, places us in a position to buy back a considerable number of these debentures, and we therefore propose at once to issue notices to the debenture holders that the company is prepared to purchase at par debentures up to one-half of the total outstanding. Now, if you will refer to the accounts, you will see that the issued capital of the company is slightly larger than last year, owing to 11 shares having been allotted to meet fractions. A little lower down comes the item "Government of Swaziland" £790 5s. This is the balance due to the Government on the purchase of the freehold of the Pigg's Peak Concession. It has now been paid and the freehold is now absolutely our property. On the other side of the balance sheet—property and machinery—you will observe that the amount standing to this account last year has been reduced by £1,091 18s. 11d.; this item represents the saving the company has made in the price at which they have now acquired the Ruby Creek property against what was originally agreed to be paid. The addition of £3,732 10s. to this account is principally the cost of installing five additional stamps and the necessary increase to the cyanide plant for dealing with the new section ore, and this item represents the sole addition to capital account during the year at the Peak Mine. So much for the accounts. Regarding the mine itself, the situation is fully dealt with in Mr. Hunter's Report. The cross-cuts at the 6th level show that values continue, and in a letter received from the manager this mail, he says that the 6th level stop in the old section is distinctly encouraging, both in appearance and value. The values are still extending north. Not sufficient work has been done to tell us anything about the

7th level. After studying the geology of the mine very carefully, Mr. Hunter has come to the conclusion that the indications are very much in favour of the continuity in depth of the payable ore body, and it is well to bear in mind that our Consulting Engineer (Mr. E. T. McCarthy), who at one time was General Manager of our Company (some 12 years ago) has always considered that the gold would go down. He held this opinion when at the second level the chute had contracted and values had fallen off, as he believed that the gold formation was in a chimney of ore, which would widen and sometimes narrow with depth. His theory was then proved correct, as in the 3rd, 4th and 5th levels the formation widened out and gave us below the 3rd level a larger body of payable ore than was even imagined possible in the early days. I am pleased that Mr. Hunter holds the same opinion as Mr. McCarthy, and I hope at the next meeting we shall be in a position to give you positive information regarding the lower levels. Since the close of the financial year, the monthly profits have risen to over £3,000, and Mr. Hunter is of opinion that he will be able to keep the profits to this average. Ruby Creek: After negotiations which have extended over many years we have at last obtained possession of this mineral concession, which, as you know, adjoins the Peak property. The directors' report has informed you that a quartz reef has already been discovered there, and in his recent letters the Manager tells us that the necessary labour is now available and he has commenced development. The Eagles Nest property is in much the same position as last year. Experiments are still being continued to solve the question of extraction, and although encouraging results were obtained by the Hendrix Agitator, these results were not sufficiently positive to warrant the erection of such a plant on the property. You will no doubt remember that we have a 20-head battery erected here, and as soon as the metallurgical problem has been solved, it will not be a matter of very great expense to put up what further reduction plant may be required and bring this mine to the producing stage. The farming policy, which was initiated two years ago, has proved an unqualified success, the cattle especially have done well, and we propose to considerably augment these operations during the current year. A local board has been established in Johannesburg, who keep in close touch with the mine. We have been most fortunate in getting as Chairman, Mr. Jack Andrew Cohen, who is devoting much time and attention to the affairs of the Company, and has already paid several visits to the property. Our Manager has, therefore, the opportunity of obtaining valuable advice on the spot, and at the same time a close supervision is kept on the working of the property. A branch transfer office has also been opened there, and has been found a convenience by shareholders in South Africa. In my opinion the Pigg's Peak Company is in a better position than it ever was before, and I believe we are now entering on a period of prosperity which will last for many years to come.

### Zaaiplaats Tin

The following is a summary for August of the working of the Zaaiplaats Tin Mining Co., Ltd.:—Ore mined, 2,534 tons, ore milled, 2,400 tons; average yield of concentrates, 4.6 per cent.; mill of fifteen stamps ran 25.5 days; duty per stamp per 24 hours, 6.274 lb. tons; concentrates won, 110 tons (2,000 lb.); average value of concentrates, about 66 per cent. tin; total development for the month, risen, driven and sunk, 519 ft.; estimated working costs (mining, sorting, tramming, milling, concentrating and roasting), £3,600; estimated profit for the month, not allowing for Government profits tax or head office expenses, £6,000. The decreased

profit is mainly due to short running time caused through breakdown in power plant as well as adjustments from previous month's estimate.

## MINING EXAMINATIONS.

Private individual tuition for Mine Managers, Mine Captains, Mine Surveyors, Mechanical Engineers and Engine-drivers' Examinations. Practical Mathematics and Electric techniques. Correspondence lessons where personal tuition is impossible. E. J. MOYNIHAN, Consulting Engineer, 10, Anglo-Austrian Buildings, Box 2361, Johannesburg.



## Correspondence and Discussion.

Comments on Questions Arising in Technical Practice or Suggested by Articles in the Journal—Views, Suggestions and Experiences of Readers.

### Mine Managers' Examinations.

To the Editor, *South African Mining Journal*.

Sir,—The points you raise in your leader on the mine managers' examination, and on which you invite discussion, certainly demand consideration, but the majority of the technical men on these fields are of opinion that the examination needs radically remodelling. It is too pretentious and impractically comprehensive. Besides the subject proper of mining, including mine valuation and other important work that is here delegated to the mine surveyor, the candidate is required to sit for mechanical engineering, electro-technics and metallurgy. It is manifestly impossible for any one man to know sufficient of all these subjects to be of practical value. The jack of all trades and master of none turned out by the mining schools can, after his brief probation underground, pass the examination, but the many more able underground men, who happen not to have had training in one of these subjects, are debarred. As in other walks of life, mine managers are born, not made, and the specially apt are not conspicuous among the products of the mining schools. The position should be open to a wider circle of competitors. The certificate should be awarded to anyone who has spent, say, five years underground, and could prove himself competent in any one of the extraneous subjects. Among our engineers, metallurgists, etc., are men ideally suited for mine managers, who would put in the underground time if permitted to compete, and the same may be said of that fortunate fellow, the secretary.

Another subject that you might discuss with advantage in your valuable paper is the topsy-turvy ratio obtaining on these fields between the salaries of the surface and of the underground staff.—Yours, etc.,

UNDERGROUND OFFICIAL.

East Rand,

10th September, 1912.

### Roberts Victor Diamonds.

To the Editor, *South African Mining Journal*.

Sir,—I am a shareholder in the Roberts Victor Diamond mine, and I read what you said last Saturday about the mine with great interest. As we can never get any information from the directors, I should like you to tell me what you mean when you say that "unofficial cables printed in London are to the effect that the claim area is expanding in depth and opening up well." What is the reason for unofficial cables being printed in London while the directors say nothing. I was down on the property about ten days ago and I had a good look round. They have abandoned the mine proper and they are working the fissure. It is a long, narrow cutting, and I hope they will be able to work it down to 100 feet before the sides fall in. They should tunnel in from the old mine and work it all from below. You say there are 220,000 loads down to 100 feet. What I want to know is: what is the cost per load? If they are getting £1 per carat for their stones, then if they get 30 carats per 100 loads, it is easy to see that they must try and keep their cost per load down. They were doing things in rather an extravagant way when I was there. They must have been getting the stuff out and washing and sorting it at about 6s. per load. Therefore, in order to make a profit which they should make they should reduce this cost considerably. I want to know why they did not tell the shareholders what profit or loss they made in July or August—we have a right to know. Also at the end of this month they have got to pay forty per cent. of their profits to the Government. What has been done about this? What I

want to know is: how many square feet have they got of yellow ground and how deep can they go with safety, and how much do they still owe Messrs. Lewis & Marks. Could you find the answers to these questions? One cannot get any details unless one is allowed to go inside the fence.—Yours, etc.,

JOHN EVANS

17, Jeppe Street,

September 9th, 1912.

### Geological Truth Tablets.

To the Editor, *South African Mining Journal*.

Sir,—The basin theory is a lovely theory when you have only one geological system to put into it, but South Africa requires five basins, each five miles deep, and circumference "X," to accommodate its five geological ages, viz., the Schistose, Lydenburg, Witwatersrand, Black Reef, and Coal Measure age. In laying down the reefs, or pebble beds of the Witwatersrand age, it is evident that the contractors, in a hurry to finish the job, often dumped more pebbles in one place than in another; and the same with the gold sprinklers who came after them, or at the same time—I can't say which. All Nature's favoured reefs are not of equal value on surface or below, but where mining is persisted in they seldom fail to yield the proverbial "quid pro quo," and a goodly profit to boot. Pebble bed mining is not like quartz reef mining where the gold is there to-day, gone to-morrow, back again, and gone again for ever. "Langerman's Kop" is not Du Preez series, any more than it is Government series, but it is a perfect section of the Van Ryn series, and carries 150 dwts. in the Van Ryn reef at surface, where opened in the kopje to the south of the church in Bezuidenhout Valley. Where the Van Ryn reef is, there the Chimes "must be also, as nature is a stickler at keeping all the reefs of a series together, beyond separating them occasionally by a lateral dyke. The rich Chimes reef is to be found in the Nigel series, which is the Van Ryn series "incog"—so also the leaders which contribute largely to the Van Ryn and Kleinfontein outputs. All geologists say that the Nigel series is Main Reef series. If so, where is Main Reef, Main Reef leader, and South Reef, and how does it come by a shale foot wall? If a shale foot wall can make a reef Main Reef, then we have five Main Reefs underlying "the" Main Reef, and often one overlying it to wit, Black Reef. Again, if Nigel series is Main Reef series it is clearly admitting that the Rand is not the only home of payable Main Reef series. Du Preez series is a very simple series to recognize, on account of its Stable reefs, etc. Rietfontein is only a sample bit thrown a mile or two out of position, and was baited with rich gold at surface, which is more than can be said for the rest of the series as a rule. Main Reef used to be a name to conjure with, but the public is beginning to "smell a mouse," for everything struck in deep shafts and boreholes cannot be Main Reef, for the shale foot wall gives it away. The boulder beds of Ventersdorp are nothing more or less than a part and parcel of the top beds of the Black Reef age, and are some of the pointers which distinguishes the Gats Rand from Magaliesburg, or the so-called Pretoria series. These boulder beds are well defined in the hills of Hartbeestfontein in the Klerksdorp district, and are made up of rolled fragments of the reefs of the Witwatersrand age, and each boulder can be correlated with its parent reef on the Rand, or elsewhere. Johannesburg will be Johannesburg till the crack of doom, and must ever remain the most important city of South Africa, for the reason that it is built on one auriferous age has another to the north of it and is surrounded on the east, south, and west by the Black Reef age, which is an inexhaustible gold producer. The trouble about this country is that it is difficult to choose a site for a township without covering nothing round of some sort be it gold, coal, tin, or copper. Johannesburg is built on five well-known gold-bearing series of reefs, viz., Main Reef series, Roubé Sky, Van Ryn, Du Preez, and goodness knows how many others. I am, etc.,

SCOTT ALEXANDER.

Rand Strategist.

Johannesburg, September 9th.

### Piggs Peak.

The General Order of the Government of the 2nd October 1912 follows, viz.:—"SIXTY acres of land, situated within the boundary of the Central Witwatersrand, and containing an average of all assays, good and bad, of 100 dwts. per ton of gold."

## REVIEW.

*A Text-Book of Rand Metallurgical Practice, Vol. II.*  
Charles Griffin & Company, Limited, 12, Exeter Street,  
Strand, London. Price 21s.

THE book under review is the second volume of two which have been written for the purpose of providing text-books for those concerned in each branch of ore reduction and treatment practice, and a guide to fellow-workers operating under "similar conditions in other parts of the world." Prepared in the first place for the use of those who are concerned in the operations of gold recovery as practised on the Witwatersrand, the works are calculated to fill a valuable place in the technical library of all who have to do with gold mining undertakings elsewhere, for although chemical processes of treatment may vary in different regions where gold is mined the general principles and mechanical operations are much of the same kind. For this reason the second volume of the issue, while it appeals with a particular claim to the interest of engineers and metallurgists on the Witwatersrand, appeals in a scarcely less inviting way to those who are engaged in milling and recovery work, whether of greater or less importance, in every mining region of the world. Dealing as it does with the design and construction of reduction plants it covers a much wider field than that occupied by the first volume, and even where it discusses local practice is full of information and suggestions which cannot fail to prove of use in constructive work generally. Several of the chapters are obviously capable of being universally instructive, for they refer to matters of economy in the handling of ore which have been pondered over and adjudicated upon in what is undoubtedly the first school of mining economies in existence. Not the least important consideration in the department of mining is the question of capital outlay and mining cost, and whereas it is possible to make experimental tests of a process upon a fairly reliable scale and at a reasonable expenditure, it is not possible to obtain information in regard to the cost and upkeep of large constructions in the same convenient way. The experience of the constructional and mechanical engineer who has dealt successfully with the problems of the Witwatersrand gold mines is, therefore, of special worth, and it is the results of this kind of experience that Mr. Schmitt has collected and added to his own in the admirable book for which he is responsible. "In recent times," as he remarks in his first chapter, "the design and construction of reduction plants has become a concrete science, and a competent engineer and metallurgist should be able to make an outline of a proposed plant and give the capital expenditure required in a very short time. This is of the greatest importance to those who have to provide the money. The financial man must be told not only the total amount required to complete the plant, but he will also want to know when it is required, as he cannot afford to let part of the vast sums required for building a modern Rand plant be idle, nor may he be able to find more money to complete a plant should it cost more than originally estimated." The object of the second volume has clearly been not only to impress these considerations on the mind of the reader, but to point out the principal means of carrying them into effect.

The earlier volume has already been reviewed in the *South African Mining Journal*, and, naturally enough, one finds it difficult to avoid comparisons at the outset. In view of what has just been said with regard to the wider applicability of the subject dealt with in the present work there can be no offence in saying that whereas the one was very good the other seems excellent. We feel sure that his technical collaborators will not deny Mr. C. O. Schmitt the full credit of an undertaking which has evidently involved a vast amount of labour and an immense deal of thought, and of which it may be truthfully said that the thought and

labour expended have not been used unfruitfully. As text-books relating to the metallurgy of gold ores, each volume is of unique value, and the second forms a fitting and adequate conclusion to an undertaking upon which the joint authors may be cordially congratulated.

A brief summary of the chapters into which Mr. Schmitt's book is divided will give an idea of the extent of ground covered. The first, under the heading of "General Considerations," deals with the various factors which influence the design of reduction plants and with the preliminary estimates and sketches which are made before a final decision is possible. Following upon this come chapters in which the sorting and treating plant, the crushing, amalgamating, clean-up and cyanide plant, and the power supply are more or less exhaustively treated of. In each case the subject is considered from every necessary point of view and is illustrated with an abundance of carefully selected drawings to scale and photographic reproductions. The next chapter, on estimating, is a particularly valuable one, inasmuch as it comprises some twenty-three sheets or schedules upon which are detailed the various separate items which have to be included in an estimate which covers everything from the sorting and treating plant to the fire service, excavations and foundations, and buildings of a fully equipped mine. These schedules alone comprise nearly forty-five pages of the volume, a fact which is sufficient to indicate its thoroughness. The problem of "The Cost of Reduction Plants" handles a difficult question in an instructive and suggestive way. The first section of the book concludes with this chapter, and is followed by Section II., in which about eighty pages are devoted to a review and description of the methods of which ore in all its forms, such as uncrushed rock, ore pulp, dry sand, slime, as well as water and solutions, are carried from one point to another. There fall to be discussed, therefore, railways, endless rope haulage, conveyor belts, aerial rope haulage skips, automatic trolley lines, tailings wheels, pumps, and all the various devices which have been introduced to carry out the important work of moving materials from one point to another at the lowest possible cost and with the greatest degree of convenience. The volume comprises 438 pages, divided into eight chapters, and contains 434 diagrams and illustrations, together with 33 tables, and is furnished, as is the first volume, with a bibliography and a copious index. The set of two volumes constitutes a work which should be in the hands of every mining engineer, metallurgist, and constructional engineer, and it may be added that no student of the various branches of ore reduction and gold recovery should consider his library adequately furnished until it includes these text books, nor his education sufficiently complete until he has acquired a thorough grip of the economic principles so admirably discussed therein.

## ANSWERS TO CORRESPONDENTS.

"A. L."—In liquidation.

"W. G. H."—Enquiring.

"Twice Bitten."—Absolutely no truth in the rumour.

"Shareholder."—We have not forgotten it—as you will see from an article in last week's issue, which evidently crossed your letter.

"Geological."—The office of the secretary is at Transvaal Bank Buildings. (2) No balance sheet has been available. (3) No returns have been made. (4) Not working owing to lack of capital. Better leave alone.

"Vineit."—We advise the latter course—sell on a small rise and cut your loss. The present position in the mine is unsatisfactory, and we fear there is little likelihood of any substantial improvement. The shares, however, should rise in sympathy with any pronounced upward movement in the market, and we would advise realisation in such circumstances.



# Rhodesian Section.

## LATEST MINING NEWS.

### The Susanna Mines—Gatooma Activity—The Odzi Railway—The Quarter at the Bucks Reef Cam and Motor Developments—A Revival in Katanga—The Lomagundi District.

THE report of the Susanna Mines, Limited, for the fifteen months ended 30th June last, states that the capital of the company is £60,000 in 10s. shares, and that 65,000 shares have been issued. During the period under review alterations and additions had been made to the plant costing £3,905 9s. 10d.; a new two-compartment shaft had been sunk to the 9th level—527 ft. on the incline—at a cost of £3,305 11s. 5d.; and the development carried out had cost £3,671 6s. 8d. The profit made amounts to £2,551 8s. 3d.—the result, it is pointed out, of about four months' milling. Since milling began, in February last, the cost of all development work and main shaft sinking has been written off monthly. The meeting of the company takes place in Bulawayo on the 26th inst. In his report, Mr. S. C. Dyer, the consulting engineer, states:—*Footage.*—Since July, 1911, the total footage done in the two mines was 1,620 ft., made up as follows: Shaft sinking 100, winzing and raising 625, cross-cutting 180, driving 415; total, 1,620 feet. *Reduction.*—The eight stamps have not been continuously at work since February, when milling commenced, owing to the difficulty of obtaining sufficient ore. Since April, however, this was overcome, and with the exception of an occasional short stoppage, due to water shortage, etc., the mill has been fully employed. From February, 1912, to the end of July, 4,500 tons were crushed for a yield of £13,777 (mill and cyanide). The blanket strikes have been added to and lengthened, with the result that a higher percentage of concentrates is now being caught. A roasting furnace has been erected which is capable of treating one ton of concentrates a day, and is working well. A Hudson Economiser has been installed, effecting an appreciable saving of fuel. It is contemplated to make considerable alterations and improvements in the cyanide plants, and with this object in view Mr. Brett will proceed to the mine early next month. *Water Supply.*—For the past few months the water supply obtained from the mine and from a well on your claims has been barely sufficient for our requirements, but so far has occasioned no serious inconvenience, nor do I think it will before the rainy season is at hand. *Conclusion.*—I consider the present position of the mines as highly satisfactory and encouraging, the salient points being that: (a) Twelve months ago the ore stood at 1,300 tons, valued at £5,500. Since then 4,500 tons have been milled, yielding practically £14,000, and the present ore reserves stand at 10,000 tons, valued at £25,000. (b) In the deepest points touched in the mine on the various ore bodies, high grade ore continues to be developed. (c) The fact that a further 10 feet pay section, which has hitherto been beyond the limits of the pay shoots, has been opened up on the 10th level, i.e., the present bottom level. (d) The discovery of the two spur reefs off the old pay shoots, which, so far, wherever located and developed on, have yielded high grade ore. There are distinct possibilities of these now being found intact in the lower levels of the mine, and they give promise of substantially increasing the present ore reserves. I wish to record my appreciation of the manner in which your manager, Mr. C. H. Early, and staff have accomplished their work at the mine.

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There is considerable activity to be observed in the Gatooma district, and several inter-strike developments are taking place there. It is officially announced that all open ground between Railway Farms 8 and 10 contained within

a radius of  $1\frac{1}{2}$  miles from a point midway between the points of Gatooma Railway siding, is reserved until further notice against prospecting and pegging for minerals. Mr. Mack has commenced regular crushing on the Kyronea Primrose, the reduction plant having been completed and a trial run made last week. A trial crushing from the Iron Mask, the owner of which is Mr. J. Murray, has been made at the Amarosa mill, Shagari. One hundred tons were put through, and it is understood that 52 ozs. fine gold have been won from this tonnage, and that the tailings also carry fair values. Messrs. Keegan and Way have let the Chosen and La France claims, which are situated in the Golden Valley, about two miles from the Masterpiece Mine, on tribute, and a five-stamp mill is now in course of erection on the property. This makes the fifth new mill to be erected on this gold belt during the last six months. The Tea Syndicate dropped their stamps a few days ago. The Gem mine in the Golden Valley is said to be showing up well. The new shaft is down 100 feet, and values up to 6 ozs. have been obtained. Two shafts have been sunk, and the development so far done proves the reef to be of an average width of 4 ft., carrying an average of 15 dwts. The strike runs through four blocks, and the whole line has been opened up by means of trenches. A reduction plant will shortly be erected. The Buffalo mine, in the same locality, is also turning out well, drives now being put in on the 170 ft. level, showing better values than on the level above.

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An Umtali deputation waited on Mr. Henry Birchenough, Chief Resident Director of the B.S.A. Co., during his recent visit to the township, regarding the Odzi-Umnyama railway. It was urged that the line should be brought along the south side of the Odzi gold belt instead of the north, as at present proposed, the deputation pointing out that it would be of far greater service to the mines and farms along the belt if this were done, and also that the Melssetter district could be connected up with a branch line far more easily from the south side than from the north. Mr. Birchenough thanked the deputation for bringing that point to his notice, and said it would be fully gone into.

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The report for the quarter ended 30th June of operations at the Bucks Reef Gold Mines shows that from 2,477 tons milled the revenue from gold was £7,743. Working expenses absorbed £5,863 or 17s. 4d. per ton, which left a profit for the quarter of £1,880, or 15s. 24 per ton. The capital expenditure for the period was £1,092. The summary of development states that 97 ft. of shaft sinking was done and 467 ft. of driving, to raise, etc. At the Bucks mine in the western section the 2nd and 3rd levels have been connected by a rise from the intermediate drive, the distance risen being 106 ft., of which 91 ft. is on an incline, averaging 42 ins. in width and 40 to 58 dwts. per ton. In the winze below the 8th level 65 feet have been sunk, exposing reef of value 5 dwts. over 18 inches, for 18 ft. The reef cuts out at 70 ft. At the Prospect the new shaft has been sunk to the 10th level, and cross-cut extended to the south drive from which the mine below the 4th level was sunk 56 to 70 ft. As only slingers at foot were showing in this winze, it was decided to drive south above reef here has widened, but no extent has been met yet. On the Handress claim, which are two blocks of claims recently pegged adjoining the original Handress block, prospecting work is being done, and Handress reef has been obtained from above the surface, the reef has not continued to any depth. The payable ore reserves as at 30th

June, 1912, are 3,603 tons. The consulting engineer has at present under consideration the question of temporarily closing down milling operations, which might be found necessary in order to push on development at depth.

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Development work in the Cam and Motor mines, on the Eiffel Flats, continues to open up ore of good value over a large width of reef. The following is a summary of a report which was received by mail from the property by the London Board of the Company:—Motor mine: No. 5 level, cross-cut east: At 105 ft. south, total width of ore proved 14 ft., average value 7·8 dwts.; at 255 ft. south 91 ft., 10·4 dwts.; at 305 ft. south, 60 ft., 11·8 dwts.; at 355 ft. south, 60 ft., 9·9 dwts.; at 410 ft. south, 30 ft., 7·1 dwts.; at 510 ft. south, 20 ft., 11·7 dwts. Cross-cuts at 355 ft. south and 510 ft. south not yet through ore body. Average width over the 400 ft. in length in the section above referred to is about 45 ft., which is greater than that shown in No. 4 level over the corresponding section of the lode.

Nine coke ovens are to be built at once at the Lubumbashi smelters of the Tanganyika Concessions Co. A new water jacket furnace is to be erected, the material for which is due to arrive within a few weeks, also a new boiler. An ore washing plant is under erection at the Star of the Congo, which will considerably lessen the expenses of the conveying of ore to be treated at Lubumbashi. Many other changes and improvements are to be made without delay. Coke is on its way to Lubumbashi and the damage done by the explosion repaired, so the smelter is expected to start very shortly. Altogether a revival of copper mining in Katanga appears to be taking place.

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In the Eldorado district, the St. Ives mine has been taken on tribute by Messrs. Oswald and Shine, and it is said that the Anvil, which belongs to the Lomah Stoessel people, is likely to re-open shortly. From Mount Darwin it is reported that diamonds have been found, and that several prospecting parties have set out from Kimberley Reefs and Shamva.

## MINERS' PHTHISIS VICTIMS AND THE LAND.

### Medical Men's Scheme to Settle Southern Rhodesia.

THE following scheme, drafted by Dr. Percy A. Peall, of Southern Rhodesia, whereby mine employees may be helped to take their part in the closer settlement of Southern Rhodesia, and the evils of miners' phthisis has been to some extent anticipated. The migratory habit of the mining community, especially of underground men, is a source of loss to both men and masters. Further, very few of these men take an actual part in the settlement of the country which, in its infancy, has been to a very great extent opened up by their labours:—

During several years' experience as medical officer of two big mines it has struck me that both these facts are to some extent due to the same cause, viz., that the men have no definite goal for which they are striving, and, should by chance their thoughts turn towards the land, no partner to help them in this direction. The object of the majority, is to make money and to spend it—unfortunately usually at the hotels. Frequently I have asked men who were earning £50 to £60 a month as rock-drillers what they intended doing in the future, and have invariably been answered by a short laugh, and "I don't know." One man I remember in particular, who told me he had averaged £70 a month for five years as a rock driller, had very little money in the bank, but I am grieved to say he had commencing miners' phthisis. This brings me to that other question which at present does not trouble us to any great extent in Southern Rhodesia, but which will assume graver proportions as each year rolls by. I allude to the subject of miners' phthisis. On several occasions I have had men come to me for treatment of conghs which, on examination, have proved to be due to commencing or fairly advanced miners' phthisis. To the advice that they must not work underground again, they have answered, "What can I do? I can't do any other work and I haven't much money."

The point I wish to press home at this stage is that many of these men if they could have been removed at once to an open-air life would in all probability have completely recovered from their phthisis. They had not reached the stage where nothing could prevent them becoming physical wrecks and an inevitable burden to their friends or the country. They were still capable of doing manual labour in the open air without detriment to themselves. The scheme which I propose to briefly formulate would, I think, help to some extent to remedy both these conditions.

#### THE SCHEME.

The Chartered Company should extend the utility of the Land Bank and constitute it also a savings bank. They should endeavour to induce mine employees to deposit money in any sums and at any time in this bank, and should invest such money in breeding stock to be run on a ranching area provided for this purpose by the Chartered Company. These cattle should be allowed to increase and the increase apportioned every year to the investors in the proportion of the number of breeding stock bought by each.

One per cent. of the increase in each case a heifer should, however, be set aside to help in the building up of a reserve fund. In this way I consider that after four or five years some of these men would be in a position to take up ground with every prospect of being able to make a decent living in the open air. Provision could be made on the ranch for a course of instruction to be given to the men before they commenced farming operations for themselves. The Chartered Company should bear the initial expenses of the management, which, after all, would not be very great, until such time as the returns from the "side lines" on the ranch were covering such expenses. This should very quickly be the case with the

establishment of the Gwelo creamery and the Bulawayo bacon factory. Further, mealies or tobacco could be grown and the manager, in addition to a fixed salary, should be given a percentage of the net profits. A portion of the remainder of the profits from the produce could be spent in acquiring good bulls to run with the cattle, and the rest set aside to form a reserve fund.

As mentioned above, 1 per cent. of the increase of the stock—a heifer—should also be apportioned to the reserve fund. This reserve fund should form the basis of an insurance scheme to help the widows and children of the investors in the event of death, or the investors themselves, should they fall upon evil days or become broken down in health after having taken up land. The usefulness of the ranch could be further extended if miners, both subscribers and non-subscribers, suffering from phthisis in its early stages could be given employment there at a nominal wage. I do not suggest for a moment that the ranch should be turned into a sanatorium, but the class of case I allude to would not be a drag upon the management but would be able to do useful work. In this way these men would acquire both knowledge and health, and would then command higher wages in other localities.

I believe that if a concrete scheme on the above lines was put before the mining community it would be well supported. It would only require a very small percentage of the men to become investors to assure the initial success of the scheme which would in all probability increase in popularity in the course of time. The scheme should not be limited to underground men, but should admit all mine employees. Many carpenters, fitters, and blacksmiths, etc., have made and will make excellent farmers.

The advantages of the scheme to the men are obvious. It certainly gives them something to look forward to which at present in many cases they lack. For the country I claim that:

1. It is a step towards that closer settlement which must be our aim for many years to come.
2. It will establish in the country a section of the community which would otherwise eventually be lost to it.
3. The men "settled" would be conversant with the conditions of the country.
4. Money which would otherwise be lost to the country would be invested in the best possible manner in the country.
5. It is in the best interests of the country to give any percentage, however small, of the men who contract miners' phthisis, an opportunity of leading an open air life in the early stages of the disease.

### TO CONTRIBUTORS.

*The Editor invites Contributions on any subject of interest relating to mining and other industries of South and Central Africa, as also of suitable non-copyright photographs or snapshots of mining or engineering interest. Subject to special arrangement, the scale of remuneration for all articles inserted is at the rate of Two Guineas per page, and 5/- for every photograph. No responsibility can be accepted for safe transmission, but anything that may be submitted that is not accepted will be returned if a stamped and directed envelope is enclosed for the purpose.*



## THE GEOLOGY OF THE VICTORIA TIN FIELD.\*

[By H. B. MAUFE.]

THE district in which tin-ore has been discovered recently is situated between 30 and 40 miles east of Victoria and some 15 miles N.W. of N'danga. It will be seen that tin-stone reefs are found in two parts of this district. The larger part extends some five miles north and four miles east of the Gem mine, being in the Jiri and Makoni native reserves, but just reaching the farm Ashecombe. The smaller part lies in the farm Cleveland, the northern portions of Lemoentfontein and Doornfontein and neighbouring portions of the Chikwanda Reserve. Since visiting the district, tin-stone is said to have been found a few miles west of Dromore farm. Mr. H. Koestlich discovered the tin reefs in this district some time before those of Enterprise were found. He first found tin stone near the road between the abandoned Gem mine and its mill. It appears that at first there was a doubt about the genuineness of the discovery, which was not cleared up till a description of the Enterprise tin reefs had been published, when Mr. Koestlich examined his claims afresh and satisfied himself that he really had found a new tin field. It is not altogether surprising that there was doubt at first, for the reef tin of this field is not like the typical mineral. It is almost dead black; the forms of the crystals are not the common prismatic ones, and their faces are dull and lack the usual lustre of typical tin stone. An interesting point is the presence of a number of deep circular holes on a flat outcrop of pegmatite, which Mr. Koestlich found near his camp. They are obviously artificial and exactly like those found near ancient workings. Mr. Koestlich told me that he panned the rubble from the holes and found tin-stone in it. If the "ancients" worked the tin-stone at any time, they must have used blocks of "float" which is still abundant, for no old workings have been found. Mr. R. C. H. Cooke has published a brief description of this tin field, entitled, "Some Geological Data on the Victoria Tin Occurrence," in the *Rhodesian Mining Review*, Vol. VIII., p. 179, August 16th, 1911.

### PHYSICAL FEATURES.

The scenery is typical of a hilly district composed of metamorphic rocks ("formation") and granite. The hills do not rise as a rule more than four or five hundred feet above the surrounding plain. The chief exceptions are the two ranges called the Nyuni and Beza Mountains in the S.W. corner, and the granite hills in the east. Hurrell's Kop and Mara Hill are prominent conical hills of metamorphic rock and are well-known landmarks. The hills rise abruptly from the plains, those of metamorphic rock forming blunt conical shapes, or narrow ridges almost always well wooded. The granite builds its characteristic castle kopjes or smooth bare hog-backs from which the rock seems to peel off like the coats of an onion. The trend of the ranges is N.E.-S.W. with a more direct east to west alignment in the western part of the district, according to the prevailing direction of strike there. The hill groups are separated by wide open plains, covered with deep red and chocolate coloured clay loam, or in the lower portions by black vleis soil. The district is well watered by a number of perennial streams. Most of these take their rise to the north of the district, and flow southwards across it, ultimately draining into the Lundi river. In the north-eastern corner of the district, where the majority of the tin reefs are, the chief stream, the Mungesi, flows in an east-north-easterly direction and is said to join the Devuli river, a tributary of the Sabi.

### GENERAL GEOLOGY.

All the tin-stone reefs lie in the metamorphic rocks (often called "formation"). The latter are divisible into two groups: (1) Epidiorite group; (2) Banded Ironstone group. The *Epidiorite group* consists chiefly of epidiorite, a basic igneous rock (often a rock of the dolerite family originally)

which has undergone metamorphism resulting in the alteration of the original augite to hornblende and the recrystallization of the basic felspar, frequently as a more alkaline variety of plagioclase with the concomitant formation of epidote or zoisite and quartz. A good many varieties of this class of rock might be collected, the variations depending partly on differences of composition and texture of the original rock, and partly on differences in metamorphism. Examined strictly it is probable that some of the varieties would not be called epidiorite, but perhaps amphibolite, hornblende-gneiss, or hornblende schist, the last-named being sometimes chloritic. The commonest variety is a fine-grained, very tough, dark blue rock weathering with a red skin, where it is not washed by the rains. It is frequently called "diorite." It is usually quite a massive rock and cannot be called "schist," except in the very wide sense of a synonym for "metamorphic rock," as indeed is sometimes done colloquially. Owing to the metamorphism it is difficult to be certain whether the epidiorites were intruded as sills or extruded as lava-flows. It is in fact possible that both are represented. As a result of the intense folding the sheets of epidiorite now dip at high angles. In walking across the strike, one generally finds alternating with the massive belts finer-grained, cleaved or schistose epidiorite, which is also more deeply weathered. These "softer" belts appear to be the fine-grained margins of the sheets, though in some cases they may be actually thin sheets themselves. Serpentine was noticed in a few places in this group. It crops out in long narrow belts marked by lines of small crags, and probably it occurs in sheets like the epidiorite. It may in fact represent an ultra-basic rock of the epidiorite magma. In addition to the igneous rocks the epidiorite group includes some sedimentary rocks represented by several varieties of schist and quartzite. These rocks, however, are not abundant, and owing to their schistose structure their outcrops are marked by lines of depression, actual exposures being rarely seen. A short distance south of the site of the Gem mine mill a narrow belt of biotite schist lies between two bars of epidiorite. This rock is interesting on account of its resemblance to part of the reef of the slate mine in the Enterprise district, where a similar biotite schist in the epidiorite group is full of crystals of an auriferous sulphide. Here the rock carries only large crystals of tourmaline. Greenish phyllites and a quartzite, which can also be matched in the Enterprise district, were noticed on the road leading west from Doornfontein farm. Phyllites also occur in the epidiorite country north of Ashecombe farm, and again a short distance east of the Popotekwe drift on the main road. These schists, which were originally laid down as sediments, represent the formation into which the epidiorite sills were intruded. The *Banded Ironstone group* consists in the main of the well-known banded quartz-haematite rock, which forms its characteristic long ridges and conical kopjes. It forms a line of kopjes stretching from Mteswa Hill to Ashecombe, the long ridge extending from Mara Ranch along the south-eastern edge of Cleveland farm, and the ridge through which the Msali river breaks before joining the Chidza. It also occupies a large area in the northern part of the farms Doornfontein and Lemoentfontein. Here occur also the black and grey phyllites so often found in association with it. Some of the bands of phyllite are full of ill-formed crystals (apparently andalusite) which weather out into knots on the surface. Limestone, probably magnesian, occurs in this group on the northern part of Doornfontein and also is reported from some kopjes east of the Rurukwa river. Another mass of greyish limestone, hitherto unnoticed, occurs a short distance east of the stream forming the eastern boundary of Ashecombe farm. Its outcrop is 40 yards broad. The limestone lies next to the banded ironstone and is similar in many respects to that found in the Banded Ironstone group in Kibuir farm in Enterprise.

(To be continued.)

\*Reprinted from the Report of the Director of the Geological Survey, 1911.

## THE WEEK IN THE SHAREMARKET.

Still Improving London Buying—Good Prospects.

DESPITE the break in business caused by the Jewish Holidays, the Market has gone on improving this week, though at a naturally slower rate. All the best Rand stocks, Rhodesians and diamond counters advanced on Thursday in London, and the hesitation of the earlier days of the week was forgotten. There can be no doubt that the public is genuinely interested, and considerable parcels of shares are being daily taken off the market. Diamonds are still in as much favour as ever, and have every appearance of further improvement. The majority of Rand stocks have still a good margin to make up before they can be regarded as, in the jargon of the professional pessimist, "paid for." The smaller varieties will, no doubt, likewise advance in favour, as the general improvement continues, and some of them have undoubted possibilities. A feature of the week has been the slump in Zaaipplaats, which appears to be due to market manipulation.

	* Friday, 6th	* Sat., 7th	* Monday, 9th.	* Tuesday, 10th.	Wed., 11th.	Thurs., 12th.
African Farms ...	18 3/8	18 9	18 6	18 3	18 3/8	...
Adair-Usher Process ...	...	1 6/8	...	1 6/8	...	...
Apex Mines ...	32 6/8	34 0	33 0/8	32 0/8	34 0	...
Aurora West ...	10 0/8	10 9/8	10 9/8	...	10 0/8	...
Bantjes Consolidated ...	25 3/8	26 0	25 9/8	26 3	25 0/8	...
Benonis ...	5 0/8	5 1	5 1	5 0	5 0	...
Bushveld Tins ...	1 0/8	1 2/8	1 1	1 1/8	1 1/8	...
Brakpan Mines ...	78 6/8	81 6/8	82 6/8	80 0/8	82 3/8	...
British S.A. ...	...	30 0/8	29 6/8	29 0/8	...	...
Blaauwbosch ...	25 0/8	28 0/8	28 0/8	28 0/8	...	...
Cinderella Cons. ...	...	26 0/8	25 6/8	25 6/8	25 6/8	...
City and Suburban ...	46 0/8	46 9/8	45 0	45 3	45 6/8	...
City Deeps ...	67 4	67 3	66 6	66 3	67 0	...
Cloverfield Mines ...	7 9/8	8 3	8 2	8 0/8	8 3	...
Cons. Langlaagtes ...	27 9	28 0/8	28 0	28 3	28 9	...
Cons. Main Reefs ...	20 3/8	20 9	20 6	20 3	20 3/8	...
Coronation Freeholds ...	0 8/8	0 9	0 9/8	0 7/8	0 8	...
Con. Investment ...	...	22 6/8	...	23 6/8	...	...
Crown Mines ...	114 0/8	144 0/8	143 0/8	142 6/8	143 9/8	...
Concrete Cons. ...	...	6 0/8	...	6 6/8	6 5/8	...
Cons. Mine Selections ...	13 0/8	13 0/8	15 0	...	14 0/8	...
East Rand Cent. ...	14 6	15 0	14 3/8	14 0/8	14 3	...
East Rand Coals ...	2 6/8	2 6/8	2 6/8	2 6/8	2 7	...
East Rand Deeps ...	3 1/8	3 6/8	...	3 8/8	3 3/8	...
East Rand Props. ...	59 0/8	60 0/8	58 0/8	58 0/8	58 6/8	...
East Rand Deb. ...	£92	£92	£91 1/2	£92	...	...
Eastern Gold Mines ...	2 3/8	2 6/8	...	2 6/8	2 3/8	...
Frank Smith Diam. ...	9 6/8	9 6/8	9 3/8	9 6/8	9 3/8	...
Govt. Areas ...	25 9	26 9	24 9	23 6	26 6	...
Glynn's Lydenburgs ...	28 3	...	...	29 0/8	21 0/8	...
Glencairns ...	4 0/8	4 0/8	4 0/8	...	...	...
Glencoe (Natal) Colls ...	6 3/8	...	6 3/8	6 3/8	...	...
Geduld Props. ...	29 6	30 9	30 6/8	...	30 9	...
General Minings ...	25 0	26 0	25 3/8	25 3/8	26 0	...
Jumpers ...	...	...	...	6 0/8	...	...
Jupiters ...	12 6/8	12 6/8	12 9	11 6/8	11 6/8	...
Kaalfontein Diamonds ...	0 6/8	...	0 4	0 1/8	...	...
Klerksdorp Props. ...	3 2	3 2/8	3 1/8	3 3/8	3 0/8	...
Knight Centrals ...	18 3	16 9	16 3/8	16 0	15 9	...
Laipardsvlei Estates ...	...	12 0/8	12 0/8	12 9/8	13 6/8	...
Lace Props. ...	4 8/8	5 2	5 2	5 2	5 2/8	...
Lydenburg Gold Farms ...	2 11/8	3 0	2 10/8	...	3 0	...
Main Reef Wests ...	23 9	24 3	24 3	24 3/8	23 9/8	...
Modder E's ...	72 6	73 6/8	72 6	...	72 6/8	...
Middelvel Estates ...	1 7/8	1 9	1 9	1 7/8	1 9	...
Modder Deeps ...	43 0	42 9	42 6	41 6	42 6	...
Meyer & Charlton ...	100 0/8	102 6/8	101 3/8	101 3/8	101 3/8	...
New Eras ...	8 6/8	8 9/8	9 0/8	8 3/8	9 2	...
New Kleinfonteins ...	29 9/8	27 0/8	28 0/8	27 9	27 3/8	...
New Rietfonteins ...	8 3/8	9 6/8	8 0/8	8 0/8	8 0/8	...
New Unifeds ...	18 0/8	18 0/8	15 0/8	...	...	...
New Boksburgs ...	2 3/8	2 6	2 6	2 3	2 3/8	...
Nigels ...	19 6/8	20 0/8	20 0/8	...	18 0/8	...

\* Buyers.

\* Sellers.

	Friday, 6th	Sat., 7th	Monday, 9th	Tuesday, 10th	Wed., 11th	Thurs., 12th.
New Geduld Deeps ...	2 9	3 4	3 3	3 0/8	3 0/8	...
Orange Diamonds ...	1 9	2 0	1 9/8	1 8/8	1 9/8	...
Premiers Deferred ...	242 6/8	...	210 0/8	242 6/8	245 0/8	...
Pigg's Peaks ...	16 6/8	...	19 0/8	...	18 9/8	...
Pretoria Cement Co. ...	52 6/8	53 0	53 0/8	52 6/8	51 0/8	...
Paardekraal Estates ...	1 0/8	0 9/8	0 6/8	0 9/8	1 0/8	...
Potchefstroom Est. ...	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	...
Princess ...	...	12 0	11 0/8	11 0/8	12 6	...
Rand Nucleus ...	3 6/8	3 9	3 10	4 11	...	...
Randfontein Estates ...	33 3	33 9/8	33 6	33 3	31 6	...
Randfontein Deeps ...	5 9	6 6	5 6/8	...	5 6/8	...
Rooiberg Minerals ...	31 6/8	32 6	31 9/8	32 0	31 9/8	...
Rand Klips ...	...	5 9	5 6	5 6/8	5 6/8	...
Ryan Nigels ...	3 9/8	4 0/8	4 0/8	4 0/8	4 0/8	...
Roberts Victors ...	22 6/8	...	24 0	23 0	26 0	...
Rood. Durban Deeps ...	27 6/8	27 6/8	27 6/8	27 6/8	...	...
Rose Deeps ...	...	67 6/8	...	67 6/8	67 0/8	...
Simmer Deeps ...	...	...	2 9/8	...	2 9/8	...
South African Lands ...	5 3/8	5 4/8	5 4	5 1	5 1	...
S. Randfontein Deeps ...	4 0/8	...	4 3/8	4 3/8	4 6/8	...
Sub Nigels ...	8 0	8 3/8	8 4	8 3/8	...	...
Springes Mines ...	17 0/8	18 0/8	...	...	18 3/8	...
S.A. Breweries ...	40 0/8	40 0/8	40 0/8	40 0/8	40 0/8	...
Shebas ...	5 6/8	5 6/8	5 6/8	5 6/8	5 6/8	...
Trans. G.M. Estates ...	57 0	55 0/8	53 0/8	54 9/8	56 0	...
Temple Tins ...	3 6/8	...	3 6/8	...	...	...
Trans. Coal Trusts ...	43 9	51 0	51 3	...	50 0/8	...
Tudors ...	...	1 9/8	...	1 6/8	1 9/8	...
Trans. Cons. Lands ...	34 6	...	33 6/8	...	33 6/8	...
Van Ryn Deeps ...	21 0	21 3	21 0	20 9	21 6	...
Village Deeps ...	45 0/8	45 0/8	45 0/8	44 6/8	45 9	...
Vogel Cons. Deeps ...	1 6	1 4/8	...	1 3/8	1 3/8	...
Voorspoed Diamonds ...	10 6/8	10 6/8	10 6/8	10 6/8	10 0/8	...
Van Dyks ...	...	3 0/8	...	2 9/8	3 6	...
Witwatersrands ...	...	61 0/8	60 0/8	...	62 6	...
Woluhuts ...	...	20 6/8	20 3/8	...	20 6/8	...
Witbank Collieries ...	...	42 0/8	42 0/8	42 6/8	43 0/8	...
Wit. Deeps ...	55 0/8	60 0	60 0	...	59 0/8	...
West Rand Est. ...	3 9/8	3 9/8	4 9	3 6/8	4 6	...
West Rand Cons. ...	15 0/8	16 0	15 6/8	15 3/8	15 9/8	...
Zaaipplaats ...	41 9	43 0	41 6	35 6	35 9	...

\* Buyers.

\* Sellers.

## MINING MEN AND MATTERS.

Mr. H. H. Johnson is visiting British Columbia.

\* \* \* \* \*

Mr. W. Martin Epton is visiting the Rand from Rhodesia.

\* \* \* \* \*

We understand that Mr. John Munro, the general manager of the Transvaal business of Messrs. Barnato Bros., has been appointed to a seat on the directorate of the Premier (Transvaal) Diamond Mining Co., Ltd., as the representative of his firm. Messrs. Barnato Bros. are understood to have acquired a considerable holding in the Premier Co. Prior to taking up his residence in Johannesburg Mr. Munro was closely identified with the management of the extensive Kimberley interests of Messrs. Barnato Bros.

\* \* \* \* \*

Mr. F. S. Mahan, in his capacity as Minister of Mines, devoted the whole of last week to a journey among the mines of the Low Veld. He left Pretoria by motor on Monday morning, his first stopping place being Warmbaths. The other points of his journey were Rooiberg, S.A. Tin, Potgietersrust, Zaaipplaats, Pietersburg, Tzaneen, Leydsdorp, Griffin Mine, Blue Jacket, United Jack, Weigel's and Free State, Gravelotte, Mica Mine (near Oliphants River), Southey Bridge, and Komati Poort.



## THE AUGUST OUTPUT IN DETAIL.

### Small Rand Decrease—Improving Returns from Outside Districts—Better Group Profits—Labour Diminution more Apparent than Real.

Tin, gold output for the Transvaal for August was declared by the Chamber of Mines this week at 761,737 ozs., of the value of £3,248,395, which is a decrease on the July return of 1,601 ozs., value £6,803. The Witwatersrand yield of 732,197 ozs., value £3,110,176, shows a decrease of 3,771 ozs., value £15,901. Outside districts show an increase of 2,143 ozs., value £9,098, mainly contributed by the substantial addition of nearly £7,000 by the Transvaal Gold Mining Estates and £2,500 by miscellaneous producers. But, despite a decrease in aggregate production, which was hardly anticipated, the profit side is to the good. The group figures, it will be seen, disclose an increase on those of July. Here, again, it will be noticed, there are quite unusual fluctuations. In the two sections in which the Rand Mines are grouped, one, the Eckstein section, brings up an increase on the July figures of £26,000, and the other, the Rand Mines section, a decrease of £21,000. Then, again, Randfontein Central provides £21,500 more than it did in July, against which Gold Fields aggregate for August is £16,000 short of the July total. General Mining group is nearly £1,000 better, and Neumann group nearly £1,000 worse. Barnato group has maintained a steady regular advance from the commencement of the year, the improvement for last month over July being £1,200. Despite a diminishing labour complement, the profits earned are steadily growing, for while there are only some forty to fifty thousand tons more milled than in the corresponding month of last year, and something like seven hundred fewer natives employed by the gold industry, nearly a quarter million more in value is being produced.

#### SALIENT FIGURES.

The following are the leading figures for the month:

Total output	761,737 ozs.
Value	£3,248,395
Decrease	1,601 ozs.
Value	£6,803
Rand output	732,197 ozs.
Value	£3,110,176
Decrease	3,771 ozs.
Value	£15,901
Outside districts	32,540 ozs.
Value	£138,219
Increase	2,143 ozs.
Value	£9,098
Total stamps	10,009
Decrease	51
Rand	9,105
Decrease	55
Outside districts	604
Increase	1
Tube mills	270

#### LABOUR

There is again a decrease of 3,445 for August according to the Witwatersrand Native Labour Association figures, compared with July, on the total employed on gold, coal and diamond mines. There is a decrease on gold mines of 3,814 and an increase on coal mines of 269, while diamond mines increased their complement by 100. The figures for the past three months of the number employed by members of the W.N.L.A. at the end of each month read:

	June	July	Aug.
Gold mines	188,194	182,025	179,111
Coal mines	8,510	8,497	8,756
Diamond mines	15,530	15,834	15,934
Totals	212,234	207,356	203,811

#### LABOUR POSITION.

The following labour figures for August are compiled and furnished by the Chamber of Mines: Number of natives employed at the end of last month, or members of the W.N.L.A. and contractors:

On gold mines	179,111
On coal mines	8,756
On diamond mines	15,934
Total	203,811

#### THE FIRST DOZEN COMPANIES.

The following are the details of production of the twelve leading producers:

	Stamps,	Tube Mills.	Tons Crushed.	Value.
Randfontein Central	700	24	206,037	£265,583
East Rand Proprietary	820	25	153,650	254,785
Crown Mines	660	25	158,600	216,738
Ferreira Deep	225	6	51,440	105,565
Robinson	250	6	51,200	102,480
Rose Deep	300	7	66,000	95,115
Brakpan Mines	150	7	56,850	93,114
New Modderfontein	180	7	39,580	92,597
Village Main Reef	220	5	13,380	87,707
Nourse Mines	261	7	56,600	85,858
Simmer and Jack	320	7	75,000	85,235
Village Deep	180	7	50,700	78,033

#### THE STAMP POSITION

The stamp position shows a decrease on the Rand of 55 stamps, but one more tube mill working, while on outside mines there was one more stamp, and tube mills were the same in number. The details of changes are as follows: Rand: Decreases, Ferreira Deep, 10; Jumpers-are-Trees surry, 10; Jupiter, 15; Knights Deep, 20; Robinson Deep, 10; Rodepoort United, 5; Sumner Deep, 5; miscellaneous, 5; total, 80. Increases: City and Suburban, 5; Sumner East, 20; total, 25; decrease, 55. Outside: Increases, Miscellaneous, 26; Decreases, Shallow, 3; Shallow Reef, 10; total, 20; total decrease, 54. There were 262 tube mills operating on the Rand and 241 on outside districts.

#### GROUP PROFITS.

The following are the profits returned to the shareholders by the mines controlled by the different groups:

	June	July	August
Rand Mines	£212,288	£211,295	£220,285
Rand Mines Eckstein group	231,500	229,719	235,747
Gold Fields group	113,280	113,525	97,434
East Rand Proprietary	92,256	91,262	90,475
Barnato group	67,167	68,314	69,525
General Mining group	63,465	60,198	63,681
Neumann group	60,562	61,774	58,301
Chris. Mines Section	10,884	11,557	10,583
Gold Fields group	15,517	14,185	13,679
Kleinfontein group	25,098	22,409	21,568
Robinson group	88,492	79,029	67,502
Totals	£1,037,303	£1,018,880	£1,128,315

For the years 1912 and 1911 the group working profits are:

	1911.	1912.
January	843,470	811,637
February	791,611	812,954
March	825,498	1,090,114
April	843,685	897,968
May	829,702	959,800
June	847,641	1,037,905
July	840,471	1,018,880
August	799,776	1,028,515
September	817,223	
October	807,237	
November	824,483	
December	855,758	

#### OUR MONTHLY TABLE.

The following is our usual monthly table:—

Company.	Tons Milled.	No. of Stamps.	Total Gold obtained. Fine Ozs.	Total value.
Aurora West	15,006	80	4,299	£18,261
Bantjes Consolidated	23,550	85	8,654	36,760
Brakpan Mines	56,850	150	21,928	93,144
City Deep	41,500	110	18,160	77,139
City and Suburban	27,862	145	12,461	52,931
Cinderella Consolidated	17,340	80	5,373	22,823
Consolidated Langlaagte	20,484	140	7,483	31,786
Consolidated Main Reef	23,082	110	7,842	33,311
Crown Mines	158,600	660	58,087	246,738
Durban Roodepoort	14,187	90	3,637	15,449
Durban Roodepoort Deep	25,740	100	9,739	41,369
East Rand Proprietary	153,650	820	59,981	254,783
Ferreira Deep	51,140	225	24,838	105,505
Geldenhuys Deep	49,300	300	16,735	71,083
Glencairn Main Reef	20,145	160	3,901	16,579
Ginsberg	14,653	80	5,072	21,544
Geduld Proprietary	13,900	50	4,597	19,527
Jupiter	38,450	90	9,713	41,258
Jumpers-cum-Treasury	6,550	60	3,513	14,922
Knights Deep	48,547	250	10,349	43,960
Knight Central	23,700	150	6,752	28,681
Lancaster	20,120	100	5,103	21,676
Langlaagte Estate	53,834	200	15,106	64,163
Laupardsvlei Estate	16,400	60	4,136	17,543
Main Reef West	20,286	100	7,696	32,691
May Consolidated	15,630	100	4,181	17,760
Meyer and Charlton	14,249	75	7,760	32,962
Modderfontein B.	34,770	80	15,696	66,672
New Goch	29,329	120	6,627	28,150
New Heriot	14,920	70	5,126	21,774
New Kleinfontein	50,100	220	17,277	73,988
New Modderfontein	35,850	180	21,778	92,507
New Primrose	24,100	160	8,615	36,594
New Rietfontein	16,150	120	4,787	20,334
New Unified	11,300	60	4,908	17,025
Nourse Mines	56,600	250	20,128	86,858
Princess Estate	19,850	60	6,331	26,892
Robinson	51,200	250	21,130	102,498
Robinson Deep	16,000	200	18,101	78,117
Randfontein Central	206,037	700	62,524	265,585
Roodepoort United	29,277	50	7,120	36,244
Rose Deep	66,000	300	22,392	95,415
Simmer Deep	53,700	130	10,622	45,119
Simmer and Jack	75,000	320	20,066	85,235
Simmer and Jack East	29,413	150	6,568	27,899
Spes Bona Tribute	6,373	40	1,618	6,873
Van Ryn Gold Mines	40,180	130	12,821	54,460
Village Deep	50,700	180	18,371	78,035
Village Main Reef	43,380	220	20,648	87,707
Vogelstruis Estate	11,279	70	2,870	12,191
West Rand Central	2,213	20	894	3,797
West Rand Consolidated	27,250	100	9,317	39,704

Company.	Tons Milled.	No. of Stamps.	Total Gold obtained. Fine Ozs.	Total value.
Witwatersrand	40,250	220	10,810	45,918
Witwatersrand Deep	36,320	245	12,765	54,222
Wolhuter	27,600	120	9,354	39,733
Miscellaneous producers	—	105	4,594	19,512

#### HEIDELBERG—

Nigel	12,300	75	1,395	18,669
Sub Nigel	4,780	30	2,162	9,184

#### BARBERTON—

Barrett	—	—	266	1,130
Sheba	5,660	65	3,199	13,588
Worcester Exploration	4,500	40	1,210	5,140

#### LYDENBURG—

Glynn's Lydenburg	3,268	20	1,772	7,527
Transvaal G.M. Estates	15,180	75	9,734	41,317

#### KLERKSDORP—

Miscellaneous producers	—	209	9,652	40,997
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### Neumann Group.

The following are particulars of the results achieved by the crushing companies in this group during last month, viz.:—

	TONS.	YIELD.	PROFIT.
Witwatersrand Deep	36,320	£53,202	£17,476
Wolhuter	27,600	39,240	14,020
Main Reef West	20,286	32,184	11,009
Consolidated Main Reef	23,082	32,771	10,101
Knight Central	23,700	28,328	5,395

Total for group, £58,001

The Wolhuter has 1,313,227 fine ozs. in reserve.

The tonnage crushed by the Wolhuter was below normal, as the company has not its full native labour force. Natives are now coming in more freely, therefore it is expected that the complement will soon be made up.

### Consolidated Gold Fields Group.

The following are particulars in regard to the outputs and profits for the month of August of the undermentioned companies of the Consolidated Gold Fields group:—

Company.	No. of Stamps.	Tube Mills.	Tons Crushed.	Gold declared. Fine Ozs.	Total Profit.
Simmer and Jack	320	7	75,000	20,066	£44,528
Robinson Deep	200	6	16,000	18,314	33,021
Knights Deep	250	6	48,517	10,349	8,692
Simmer East	150	3	29,413	6,568	2,263
Simmer Deep	130	8	53,700	10,622	2,837
Jupiter	90	7	38,450	9,713	3,565
Sub Nigel	30	1	4,780	2,162	2,528

Totals

1,170	38	295,860	77,794	£97,431
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Reserve Gold—Simmer and Jack, 1,455 ozs.; Robinson Deep, 2,362 ozs.; Jupiter, 250 ozs.; Sub Nigel, 900 ozs.; total, 4,967 ozs.

The "total profit" shown above includes sundry revenue, viz.: Simmer and Jack, £2,500; Robinson Deep,



£511; Knights Deep, £161; Simmer East, £116; Simmer Deep, £543; Jupiter, £719; Sub Nigel, £372; total, £4,925.

Robinson Deep.—In addition to above, 117 ozs. were obtained from the old mill plates, the proceeds of which, viz., £616, have been placed to renewals fund.

The Knights Deep and Simmer and Jack East tonnage and profit were largely reduced in consequence of fire, which destroyed crusher station.

The Jupiter Gold Mining Company tonnage and profit were reduced in consequence of accidents to the hoists at both shafts, which have since been repaired.

The Robinson Deep tonnage and profit would have been greater but for accident to hoist at No. 2 shaft, which has since been repaired.

## Goerz Group.

Results of operations of the crushing mines comprising the Goerz group for the month of August are—

COMPANY.	STAMPS.	TUBES.	TONS.	VALUE	PROFIT.
May Consolidated	100		15,630	£17,717	£6,076
Princess Estate	60	5	19,850	26,828	1,667
Lancaster West	100	3	20,120	21,625	903
Geduld	50	2	13,900	19,180	1,563
	310	10	69,500	£85,650	£13,639

The monthly profits for 1912 are: January, £11,860; February, £12,242; March, £11,231; April, £10,649; May, £11,255; June, £15,017; July, £13,185; August, £13,639.

## QUARTERLY REPORTS.

### Village Deep.

The report on operations at the Village Deep for the three months ended the 30th of June includes the interim balance sheet, working expenditure and revenue account and appropriation account. The interim (abridged) balance sheet shows on the credit side, for sundry assets—shares, stores, sundry debtors, payments in advance, etc., £31,991, and cash at bankers and gold in transit, £162,370. The liabilities due to sundry creditors for loans, dividends, stores, wages, Government tax, etc., amounted to £110,062, and the balance from appropriation account was £95,118. Working expenditure and revenue account shows the value of gold recovered to be £209,595, against which working expenses absorbed £145,016, or 19s. 4d. per ton, which left a working profit of £64,549, or 8s. 8d. per ton. Sundry revenue amounted to £647, making together a total of £65,196. The interim appropriation account (subject to amendment) shows that the balance of working expenditure and revenue account brought forward at the 31st of December was £25,565; for the March quarter it was £95,712, and for the June quarter £65,196, making together a total of £186,473, against which are set Government tax (estimated) for the six months, £11,775, and interim dividend No. 8 declared on the 11th of June, £79,550, which leaves the balance carried to the balance sheet of £95,118, as stated above. The profits appropriated in the last quarterly report, amounting to £12,571, have been reversed. The credit balance of appropriation account is not wholly available for distribution. The capital expenditure for the six months ended the 30th of June (£32,031) on new construction, etc., and £2,586 in respect of undermining rights annuity have not yet been appropriated. The amount to be appropriated for these sums will not be determined until the end of the financial year. The number of tons crushed was 149,700, from which 99,967oz. were obtained, the total yield per ton being 28s. On development work 6,111 feet were driven, sunk and risen, exclusive of stopes. The reef disclosures were as follows: Main Reef, distance exposed, 2,366 feet; width, 35 inches; assay value, 47s. 2d.; south reef, distance exposed, 1,637 feet; width, 23 inches; assay value, 53s. 7d. Development footage amounted to 6,111 feet, of which 4,003 feet were valued at 11.7 dwts. over 30 inches, and it is satisfactory to note that the reef disclosures in the Thurf section are encouraging. During the quarter 163,881 tons of payable ore, of an average value of 28s. 7d. per ton, were fully blocked out and valued, and added to the reserves. There still remains a large tonnage of main reef leader awaiting valuation when the necessary boxing-in is completed. This work is now progressing rapidly. The main incline shaft, Thurf section, was sunk a further 172 feet, and is now 155 feet below the 18th level. Development redemption has been increased from the 1st of June from 3s. to 3s. 6d. per ton milled. Capital expenditure for the quarter amounted to £20,753.

### Wolhuter Gold Mines.

The company's manager reports for the quarter ended 31st July, 1912, as follows:—Expenditure and revenue (for quarter). Calculated on the basis of the tonnage milled: 120 stamps, 1 tube mills, and cyanide works. Milled, 89,100 tons. Working expenditure: Mining, £37,912 7s. 8d. (8s. 6.202d. cost per ton); pumping and hauling, £3,926 10s. 2d. (10.196d. per ton); milling, £19,591 0s. 6d. 2s. 4.528d. per ton; development, £9,341 10s. 1d. (2s. 2.509d. per ton); cyaniding slimes, £1,930 19s. 11d. (1s. 1.282d. per ton); cyaniding slimes, £1,396 16s. 9d. (3.762d. per ton); general charges, £2,515 1s. 3d. (6.856d. per ton); mine charges, £918 1s. 5d. (2.473d. per ton). Total cost, £57,988 17s. 1d. (17s. 3.377d. per ton). Profit for quarter, £12,165 0s. 6d. (10s. 1.657d. per ton). Total working expenditure, £122,153 17s. 7d. (17s. 5.041d. per ton). Capital expenditure for quarter.—The capital expenditure was as follows:—Shafts, £91 6s. 6d.; buildings, machinery, and plant, etc., £1,618 19s. 6d. Total, £1,710 6s. 6d. (Note.—No allowance has been made in the above statement for the Government tax on profits.) Reserve gold carried forward to 1st August, 1912, 1,873,227 fine ounces. Mining Ore

mined from each reef.—Deep Level: Main Reef, 15,126 tons; Main Reef Leader, 13,900 tons; South Reef, 17,018 tons, total, 46,344 tons. East Incline: Main Reef Leader, 21,300 tons; South Reef, 16,659 tons; total, 40,959 tons. Mynpacht Pyritic Lode, 965 tons; Main Reef, 521 tons; Main Reef Leader, 5,562 tons; South Reef, 7,671 tons; total, 14,119 tons. Totals: Pyritic Lode, 965 tons; Main Reef, 15,947 tons; Main Reef Leader, 13,762 tons; South Reef, 40,748 tons, grand total, 101,422 tons. Approximate tonnage sent to the crusher house, 101,422 tons; waste sorted out (12.751 per cent.), 12,922 tons, total, 88,500 tons. In mill ore bus 1st May, 1912, 600 tons; total, 89,100 tons. Tons milled, 89,100. In mill ore bus, 1st August, 1912, — tons. Milling.—Number of stamps running 120; total time run, 84,421 days; tons milled 89,100 tons; duty per stamp per day, 8.795 tons, amalgam recovered, 63,975.0 ozs.; assay value of ore milled, 6,896 dwts.; yield in fine gold, 19,683,639 ozs.; yield per ton milled in fine gold, 1.421 dwts. Cyaniding Sands.—Tonnage treated, 51,200 tons; assay value of sands treated, 2,990 dwts.; yield in fine gold, 6,720,177 ozs.; yield per ton treated in fine gold, 2.625 dwts. yield per ton milled in fine gold, 1.508 dwts. Cyaniding slimes.—Tonnage treated, 37,900 tons; assay value of slimes treated, 1,695 dwts.; yield in fine gold, 2,750,000 ozs.; yield per ton treated in fine gold, 1.431 dwts.; yield per ton milled in fine gold, .917 dwts. Recovered from all sources, 29,164,116 ozs. 6.546 dwts. fine gold per ton milled. Development.—The payable tonnage developed during the quarter amounts to 92,952 tons, valued at 6.26 dwts. over 34.3ins. stopping width. Deep Level Section. The development in this section shows but little change since the last report; 1,608 feet have been sampled, averaging 5.5 dwts. over 50.8ins. 10th Level: Winze 1 West, Main Reef Leader, shows somewhat higher values, being 9.3 dwts. over 40ins. 15th Level: Raise 1 West in East, Main Reef, averages 5.8 dwts. over 60ins. for 8.5 feet. 17th Level: Drive East, Main Reef Leader, continues good, being 7.5 dwts. over 50 ins. for 165 feet driven. In this drive a pyritic quartzite band has been exposed, giving good value, which, combined with the Main Reef Leader, averages 9.3 dwts. over 60 ins. for the same distance. This drive has now reached the Goch Boundary. 18th Level—Drive East, South Reef, shows an improvement, being 6.3 dwts. over 55ins. for 90 feet driven. Winze No. 3 East, South Reef, started at 465 feet in Drive East, averages 16.0 dwts. over 30 ins. for 27 feet. 19th Level: Drive East, South Reef, continues good, being 8.4 dwts. over 60ins. for 95 feet sampled. Drive 2 East, Main Reef, averages 5.3 dwts. over 61 ins. for 93 feet. 20th Level: Drive East, Main Reef, continues poor, being 2.3 dwts. over 68ins. for 39 feet. Drive West, Main Reef, is also low value, averaging 2.0 dwts. over 54ins. for 130 feet sampled. Two prospects, for Main Reef Leader East have been put up, the one being 2.3 dwts. over 40ins. and the other 1.1 dwts. over the same shaft in Drive East, Main Reef. East Incline Section. In this section 917 feet have been sampled, averaging 6.1 dwts. over 19 ins. 15th Level: Drive West, Main Reef Leader averages 5.8 dwts. over 40 ins. for 92 feet sampled, the assay value being 11.0 dwts. over 40 ins. 16th Level: Main Reef Leader, Drive West, is in faulted country. 17th Level: Driving West on the Pyritic Bands the value is lower than for last quarter, being 3.6 dwts. over 40 ins. This drive has reached the western boundary. 19th Level: South Reef, Drive West, continues low grade, being 1.7 dwts. over 60 ins. 20th Level: Drive West, Main Reef Leader, maintains a good average, being 9.1 dwts. over 50 ins. and when combined with the Main Reef, shows 6.0 dwts. over 81 ins. Main Reef Leader East averages 10.9 dwts. over 48 ins. The South Reef has been intersected in Cross Cut West of Shaft at 94 feet and 147 feet sampled in Drives East and West, averaging 7.6 dwts. over 50 ins. South Reef, Drive East, continues poor, being 2.6 dwts. over 61 ins. Footage developed: Deep Level, 1,881 feet; East Incline, 1,002 feet; Mynpacht, 245 feet, total, 3,191 feet. Tons developed or exposed during the quarter (includes ore milled) 110,422 tons. Assumed payable tonnage: Deep Level, 67,975 tons; assay value 6.20 dwts. over 53.5 ins.; East Incline, 24,771 tons; assay value 6.43 dwts. over 54.7 ins.; Mynpacht, 24,771 tons; assay value 6.26 dwts. over 54.3 ins. Assumed (includes ore milled) 110,422 tons. Assumed payable tonnage, 110,422 tons; assay value 6.20 dwts. over 53.5 ins.; East Incline, 24,771 tons; assay value 6.43 dwts. over 54.7 ins.; Mynpacht, 24,771 tons; assay value 6.26 dwts. over 54.3 ins. Assumed (includes ore milled) 110,422 tons. Assumed payable tonnage, 110,422 tons; assay value 6.20 dwts. over 53.5 ins.; East Incline, 24,771 tons; assay value 6.43 dwts. over 54.7 ins.; Mynpacht, 24,771 tons; assay value 6.26 dwts. over 54.3 ins. Assumed (includes ore milled) 110,422 tons. Assumed payable tonnage, 110,422 tons; assay value 6.20 dwts. over 53.5 ins.; East Incline, 24,771 tons; assay value 6.43 dwts. over 54.7 ins.; Mynpacht, 24,771 tons; assay value 6.26 dwts. over 54.3 ins.

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## Engineering Notes and News.

### THE MAKING OF ESTIMATES.

The Importance of Making Correct Estimates—A Proper Basis for Calculation—Factors which have an Influence on Actual Cost.

In his useful and interesting volume upon "The Design and Construction of Reduction Plants" and "The Transport of Materials," which Mr. C. O. Schmitt, M.Inst.M.E., has contributed to the series, "Rand Metallurgical Practice," and which is reviewed in another part of this issue, the author has a particularly valuable chapter on "Estimating." The following remarks form an introduction to the subject, and are worth quoting, quite apart from their context:—

The question of making a correct estimate of the cost of a proposed plant is second only in importance to that of building the best plant to suit the conditions of the case under consideration. In the case of the large plants now under construction or proposed on the Rand and the large sums of money involved, it is not only a question of how much does a plant cost, but also when is the money required? It is essential, before a correct estimate can be made, that a definite scheme be decided upon and the main features of the proposed plant determined. Even then the estimate is by no means an easy matter, as the engineer must be familiar with all the details of the future plant, either from previous experience, or as a result of detailed study of new features to be embodied. Estimates can be made in two different ways, depending upon the purpose for which they are intended. In the first place, an estimate may be required for determining the approximate expenditure on a new plant on the basis of a given capacity. If the new plant will not contain any new features, it is usually possible to estimate the cost from the record of costs of plants previously built, after making due allowance for possible variations due to local conditions. To do this with any degree of accuracy the estimating engineer should have the cost of previous plants tabulated in various ways. As long as the stamp-mill was the only crushing plant used in reduction operations and the stamp duty was merely a function of the weight of the stamp, it was the general practice to express the cost of a reduction plant on the basis of the number of stamps. At the present day, when the number of stamps in use by no means determines the capacity of a reduction plant, it is advisable to express the cost of a plant as a function of the capacity, generally on

the basis of the tonnage milled per day. The latter is obviously the only correct method, as can be seen by the following comparison of the two methods:—

(a) Capital cost of reduction plants per stamp		Ratio
1. Average plant of Rand Mines, Ltd.	£1,761	117
2. Joint plant, Knights Deep-Simmer East	1,500	100
3. Old plant, Simmer Deep	1,066	71
4. New plant, Simmer Deep	1,500	100

(b) Capital cost of reduction plants per ton milled per day—		Ratio.
1. Average plant of Rand Mines, Ltd.	£356 (33)	332
2. Joint plant, Knights Deep-Simmer East	215	200
3. Old plant, Simmer Deep	121	115
4. New plant, Simmer Deep	107	100

The above clearly shows that at the present day a true picture of the cost of a reduction plant can only be obtained

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by basing the cost on the capacity of the plant, and not merely on the number of stamps. Although the figures given show the enormous reduction in capital cost that has taken place, it must be borne in mind that a portion of the reduction is due to the advantages derived from purchasing power in bulk, rather than erecting a separate power plant for the reduction plant. However, since this does not, as might be expected, increase the crushing costs, the comparison on this basis must be considered fair. Estimates which are to serve for the purpose of checking the expenditure on the plant during construction must be made accurate in every detail, and should specify practically all items. The making of such an estimate involves a good deal of work, as it necessitates the preparation of detailed drawings and quantities for all sections of the plant. It is, therefore, not any more a question of general policy, but of accuracy in detail and of ability to apply experience previously gained in the best manner. In other words, estimating is intimately connected with the design of the plant, and for that reason the detailed estimate can only be made by the engineer responsible for the design, or someone fully conversant with it. It is naturally of the greatest importance that nothing is forgotten, and that every item receives due consideration before it is accepted. A full list of all details of the various parts of the plant must therefore be made, so that the costing of the various items is practically a mechanical matter. To avoid the omission of any item of importance it has been found advantageous to use schedules as appended hereto, and although the proposed

plant may differ in detail, yet the list of items in the schedule will greatly minimise the risk of leaving out any important part of the plant. The cost of a plant when finished may be higher or lower than the estimated cost, due to the following reasons:—(a) The price of machinery and materials may have varied. (b) The design may have been varied as the result of further information not available when the estimate was made. (c) Parts of the plant may have been forgotten or duplicated. Whichever may be the case, the point at which the difference arose can, however, be traced, and generally the fact that the estimate is too high or too low should be known long before the plant is completed. A detailed estimate also serves as an excellent check on the efficiency of the construction work, because, if based on the known cost of work previously done, it permits of a comparison, and there should be good reasons for the increased cost of work which has previously been done at a lower rate. If based upon detailed quantities on unmanufactured materials, an easy check on the materials used is possible and a waste should not occur. Unless there are very clear reasons, the cost of the completed plant should not vary from the estimate beyond a narrow margin of a few per cent. either way. Accurate estimating must be followed up by accurately keeping and apportioning the costs to the part of the plant to which they apply, so that one item is not unduly burdened with expense properly chargeable to another part of the plant. In fact, keeping accurate accounts during the construction of reduction plants is just as important as in manufacturing industries, although this is not generally realised.

### Jumpers-cum-Treasury.

The following cable has been dispatched to the London agency of this company:—"The following is the result of the joint working of the 'Jumpers' and Treasury mines during last month: 60 stamps, working 27 days, crushed 6,550 tons, yielding 1,890 ozs. fine gold from mill, 1,047 ozs. fine gold from tailings by cyanide, 429 ozs. fine gold from current slimes, 147 ozs. fine gold from accumulated slimes; total from all sources, 3,513 ozs. fine gold. Value of the output, £14,756. Joint profit for the month, £2,006. Position of joint gold reserve at end of last month, 880 ozs. fine gold."

### New Patents.

412. Herbert Charles Rowlands.—Improvements in railway sleepers.
413. John George Robinson.—Improvements in and relating to steam superheaters for locomotive and other smoke tube boilers.
414. Edward Henry Woodman and John Edward Stone.—Self-oiling roller or idler.
415. Daniel Ready.—A device for the prevention of miners contracting miners' phthisis.
416. Vernon Hope.—Improvements in fusible cut-outs for controlling electric circuits.
417. Harold Dunsterville Bam.—Improved automatic safety coupling for railway and other vehicles.
418. William Lippiatt.—Improvements in couplings for railway vehicles.
419. Andrew Brander and Arthur Henry Naude.—Magnetic gravity stamp for crushing ores.
420. Henry Thomas Hall.—Improvements in means for sub-soiling with explosives.
421. Oswald Silberrad.—Improvements in explosives.
422. Alexander Frederick Jenkins.—Acetylene gas generating systems.
423. Johannes Harden and Electric Furnaces and Smelters, Limited.—Improvements in and relating to the production of metals from ores by reduction.
424. Harry Pauling.—Improvements in electrodes for effecting gas reactions.
425. Arthur Harry Wright.—Improvements in machines for marking mail matter.
426. Louis Robert Vierdag; Albert Edward Dougherty. Extracting oil out of maize (mealies).
427. William George.—Improvements in tamping shot holes.
428. William George.—Improvements in sleepers.
429. Alfred George Newkey Burden.—Improvements in ore feeders for stamp mills.
430. Frederick Retallack.—Improved septic tank for treatment of sewage.

461. Edward Henry Woodman and John Edward Stone.—Roller key for pulleys.
462. Thomas Stothert McLaren.—Electro Thermo incubator.
463. James Grant Gibson and Hans Gluck.—Improvements in tube mills.
464. Hans Nordrok and Gentil Prella.—Improvements in ore feeders.
465. Robert Rodger.—Improvements in mills or apparatus for reducing ore or other materials.
466. Richard Henry Vineer and Henry Arthur Young.—Improvements in cigarette packets or containers.
467. Jacobus van der Walt.—Improvements in animal traps.
468. Maurice Leblanc.—Automatic balancers for rotating bodies.
469. Bryson Duncan, and Francis Lockhart Duncan.—Improvements in the wheels of road vehicles.
470. The Sandycroft Foundry Co., Ltd., and Thomas Murthwaite Dutton.—An improved device for elevating liquids and solids.
471. Johannes Ludowicus Steyn.—Steyns racemic spirits, brandies, and vinegars.
472. John Sachs.—A new and improved chemical preparation for sweetening purposes and mode of manufacturing same.
473. George Newmann.—Dust and smoke allayer.
474. Wilhelm Mauss.—Improvements in mountings for percussive coal cutters and the like.
475. Friedrich Ulde.—Improved process for producing ammonium nitrate.

### Tenders Accepted.

The South African Railways Administration has accepted the following tenders:—1. Calson for Graving Dock, Table Bay: Messrs. E. Finch and Co., Capetown, c.i.f., £7,125. 2. Cement: The East Asiatic Co.: 8,000 casks Portland Cement at 7s. 2d. per cask (ex ship Port Elizabeth); Messrs. Hunigmann and Co., 28,000 casks Portland Cement at 5s. 3d. per cask (f.o.b. Antwerp). 3. Mealies: White Mealies—Messrs. Wm. H. Muller and Co., Johannesburg, 20,000 bags of 200lb. net, at 9s. 7d. (delivered f.o.r. radsins of 112 miles from Johannesburg); Yellow Mealies—Messrs. Warder and Bredell, Johannesburg, 2,000 bags of 200lb. net at 9s. 7d. (delivered f.o.r. New-castle); Yellow Mealies—Messrs. Vereeniging Milling Co., 2,000 bags of 200lb. net at 9s. 9d. (delivered f.o.r. Vereeniging or basis Vereeniging); The Central Agency for Co-operative Societies, 2,000 bags of 200lb. net at 9s. 10d. (delivered f.o.r. Truettfontein). 4. Milling Services, Transvaal Milling Co., at 6d. per bag. 5. Mealie Meal: The Vereeniging Milling Co., 5,700 muids, 180lb. net, at 9s. 6d. (f.o.r. Vereeniging); Mr. A. H. Martin, 1,144 muids, 180lb. net, at 9s. 10d. (f.o.r. Lady-smith); L. H. S. Jones, 1,056 muids of 180lb., at 9s. 8d. (f.o.r. New-castle). S.A.R. Tenders are open for the following:—Tender No. 421: Buffalo Hides: tenders due September 17th, 1912. Tender No. 429: Fencing for Pretoria Station Yard: tenders due September 24th, 1912. Tender No. 420: 100-ton Non-Propelling Floating Derricking Crane for Table Bay Harbour: tenders due October 15th, 1912.



## Finance, Commerce, and Industries.

The financial statement published in the current issue of the *Union Gazette* shows that July was an

**Estate Duties.** extraordinarily good month from the point of view of the Exchequer. The revenue amounted to no less than £1,622,308, which is close on half a million more than the revenue for the month of June, while it is very considerably in excess of the monthly average of the Budget estimate. Indeed, if the Treasurer had such a revenue every month his estimate would be increased by more than three millions. An examination of the figures, however, shows that this remarkable position is not due to any particular advance in what may be called the ordinary heads of revenue. The main reason is a phenomenal windfall in the shape of estate duty. Mr. Hull's estimate of his receipts from this source for the whole of the financial year was £72,000, yet in the month of July alone, estate duty produced no less than £113,531, or nearly double the year's estimate. There is nothing remarkable in the rest of the figures. The fact that mining revenue began to come in accounted for the marked increase over the receipts for the previous month, when the Minister took £125,000 from the railways out of the half a million which was his share from this source.

At the Chamber of Commerce meeting this week, Mr.

**Cape Coal Trade.** Wiener drew attention to some important increases which had taken place in bunkering during the last few years. In 1910,

954 steamers entered the docks with an average gross tonnage of 4½ millions, the cargo landed and shipped being 344,337; in 1911, 1,113 steamers entered with a tonnage of 5½ millions, the cargo landed and shipped being 995,362. The increase in the number of ships was 159, in the gross tonnage 941,744, and in the cargo 156,087. For the seven months of the present year ended July 31, there were 734 steamers, the gross tonnage being 3,626,790; in 1911 the figures were 673 and 3,187,730, an increase in the tonnage of half-a-million for the seven months and 61 more steamers. The cargo was 717,148 tons, as against 555,551, an increase of 162,097, which, added Mr. Wiener, is highly satisfactory. They had bunkered in 1911 202,767 tons, and in 1910, 83,510, an increase of 129,267 tons. The strange thing was, Mr. Wiener said, that they were the best customers in the matter of coal exported from Durban. In the seven months of this year they had imported from Durban 254,436 tons, while last year for the whole year the quantity was 201,369 tons, so that in the seven months of this year they had bunkered as much as in the whole of last year. They had given a tremendous impetus to the coal trade.

In discussing the possibilities of the low country of the

**Successful Cotton Growing.** Pilgrim's Rest district, a correspondent of the *Pilgrim's Rest and Sabie News* says: A rainfall of from 25 to 35 inches is abundant for agricultural purposes and quite sufficient for the cultivation of almost every sub-tropical plant, especially for cotton. It is not easy to give an opinion on the probable success of the cultivation of this or that plant. A few experiments have been made, among which is cotton, which has proved an unqualified success. My acquaintance with sugar, tobacco, tea and coffee, sisal and hemp, leads me to believe that all these plants could be cultivated with advantage, with the exception of coffee, for which the country is too windy for it to be grown on anything like a large scale. That cotton grows well and surpasses the American article of the same kind has been proved. I have seen the reports on cotton grown in the low country from the Colonial Institute and from the Liverpool brokers of the British Cotton Growers' Association. The price for which this cotton was sold at home was from one to twopence higher than that paid for the American stuff

of the same kind, though the cotton was grown under unfavourable conditions and on raw land, which goes to show that, if grown with care under normal conditions, the results would be even more favourable.

The question of housing accommodation in Pretoria has been much to the fore of late, and on the subject of a statistical bureau Mr. J. D. Robertson, the Acting Town Clerk, has been collecting figures as to the progress of the building line in Pretoria during the past two and a half years. These, according to the *News*, shows that no less a sum than £1,305,777, has been spent in this direction within the municipal area during that period, quite apart from an amount of £250,000 (approximately) which has been spent in the suburbs. The following are the figures: 1910 Domestic, £73,531; business, £29,616; Government, £944,400; total, £1,047,550. 1911 Domestic, £107,616; business, £35,660; total, £143,336. 1912 (7 months) Domestic, £73,321; business, £23,270; Government, £18,300; total, £114,891. Totals Domestic, £254,531; business, £88,546; Government, £962,700. Grand total, £1,305,777. It is stated that the Government will in the next few weeks give out contracts for a further £100,000 in connection with the Girls' High School. From these figures it will be seen that there is considerable activity in the building line and Pretoria is not so backward as our Capetown friends would like to make out. There is yet plenty of room for enterprising people to erect suitable residences for the constantly increasing population of officials in suitable neighbourhoods and at a fair rental.

The report of the Bechuanaland Exploration Company for the year ended March 31 states that the shares and interests realised during the year resulted in a profit of £9,637, and the recovery of £189, part of the amount written off shares and interests on June 30 1907. A sum of £17,857 has also been received in dividends, interest, rents, fees, etc., in London and South Africa. Provision has been made for depreciation of shares and interests, and the current value is, it is stated, in excess of the amount at which they stand in the balance sheet. The expenditure incurred on mining claims and new ventures, amounting to £7,160, has been written off. The company engaged a prospector to follow up the reported two discoveries in the Abercorn district of Rhodesia, but the results obtained proved the discovery to be unimportant. The Washington Mine, which is under tribute, has produced gold to date of a value of £100,000. The Rhodesian Mines, Limited, has paid a first dividend of 10 per cent. After making provision for development and depreciation and leaving a balance of £3,000 to the credit of that account the net profit for the year amounted to £17,719, which, added to the amount brought forward makes a total of £9,068. The directors recommend a dividend of 4 per cent, leaving £1,068 to be carried forward subject to directors' orders.

### INVESTORS' DIARY.

The following company meetings have been announced:

- Sept. 20.—Transvaal G.M. Estates; Swaziland Tea.
- Sept. 21.—Wit. Deep.
- Sept. 23.—Crown Mines.
- Sept. 27.—Sub-Nigel; Simmer and Jack Prop.; New Klondike; Wolhuter, G.M.
- Oct. 19.—Wolhuter G.M.
- Oct. 23.—Johannesburg Consolidated Investment Co.
- Oct. 29.—Jumpers G.M.Co.; Zaanplaats Tea Mining Co.
- Oct. 30.—Rooiberg Minerals; Nourse Mines.
- Nov. 6.—New Modderfontein.
- Nov. 27.—New Boksburg G.M.; Rand Klip.

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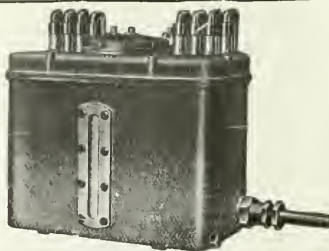
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## Automobile Notes.

### T.A.C. Doings.

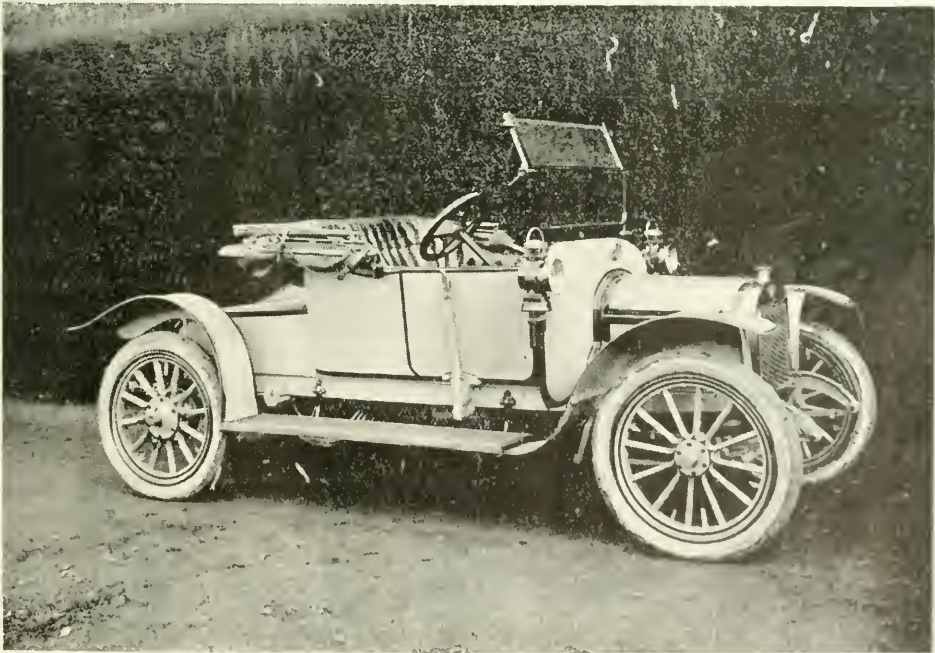
The annual speed trials held on Saturday, the 7th inst., over a course of one mile, flying start and finish, on the Main Reef Road, near the Modder Deep Levels, were arranged by the Transvaal Automobile Club in the usual successful manner characteristic of events under that auspices. It will be remembered that the conditions of the competition originally provide for two separate classes for cars, viz., touring and stripped condition! In the case of the latter, however, the idea was abandoned, owing to the paucity of entries. Cars conforming to touring conditions, as exacted by the Club, numbered seven, and included three Talbots, and one, respectively, of the Austin, Star, Sunbeam and Delage type. The winning car, Mr. H. Gill's "Austin," put up a very creditable performance, considering the car was only 10-14 horse-power, the win being a most popular one, and eloquently testified to the favour in which this admirable machine is held by the motorist community. The working out of formula has placed Mr. C. G. Saker's Talbot second in this event. The results in the American section of the competition once again brings the Buick car into prominence. Mr. P. Lang securing first prize with a machine of that well-known type. The Ford, Flanders and E.M.F. were among the worthy representatives of the American car in this race. The Talbot, driven

by Mr. C. Hoare, made the fastest time of the day, covering the measured distance in one minute, a very creditable performance, and one which is usually associated with a prepared racing track. Consolation prizes were awarded in the general section, and also in the American car class. Mr. B. K. Chambers carrying off the honours with the Talbot in the former, while the Flanders, driven by the popular Club Secretary, Mr. P. Grogg, easily annexed the prize offered to the American machines under this particular heading. Great regret was expressed on every side, owing to the absence of a Vauxhall in the competition, a car with an enviable record in events where speed is the determining factor. It is understood, however, that a machine of this type had been entered in the stripped class, the abandonment of which has already been referred to.

The Club propose holding the hill climbing competition, the next event on the season's programme, on the 29th inst. At time of writing, it is regretted, the venue has not been decided upon, but the results of the deliberations of the Trial's Committee, who have the matter in hand, will be announced early in the coming week. The intention is to select, if possible, a suitable course for the contest within easy distance of Johannesburg, where the public will be afforded an opportunity of witnessing the performances of competing cars.

## 10/14 AUSTIN TWO-SEATER.

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article on removal in the open air. To this advice, which is of the utmost importance, may be added the suggestion that all cleaning should be conducted also in the open air.

\* \* \* \*

The new model of the 10-12 h.p. Metallurgique certainly conveys the impression of sound commonsense design all through, and the manufacturers are to be congratulated on their attempt to produce a complete vehicle thoroughly neat in construction, and cunningly devised to meet the requirements of those motorists who look after their cars themselves. Evidently great care and cleverness have combined to produce such an excellent result.

\* \* \* \*

The number of motor vehicles in use in New York is increasing at a prodigious rate, no less than 85,000 cars being registered this year, less than 9 per cent. of these being commercial vehicles. It may also be of interest to remark that the American Automobile Association embraces no fewer than 400 affiliated clubs. The good roads programme is one of its main planks and great progress is resulting in the betterment of the road system directly attributable to the awakening which the automobile has created to the crying need for suitable roads.

\* \* \* \*

Mr. Chas. Jarrott, the well-known motor expert, in an interesting account of his recent tour in South Africa, refers to the marked antipathy shown by the Kafir in regard to photography, and not the least amusing of the many adventures described is the attitude of the native in this respect. He relates how his travelling companion, Mr. S. F. Edge, even offered money bribes at some remote parts to induce the dusky to approach, but failed. Mr. Jarrott, therefore, concludes that the belief in the evil eye still prevails amongst the natives of the sunny south. The motor in many parts of the tour excited the natives in a truly wonderful way.

\* \* \* \*

With the approach of the hot season the cooling and general ventilation of cars are subjects of much importance to the South African motorist, who values any suggestions calculated to improve the position which the present day body design renders acute in the height of the summer season. Manufacturers, who are devoting much attention to Colonial requirements, are fitting Louvre and other approved types of ventilators to cars for overseas use, and which obviate largely this evil. Great improvements, however, are capable of being effected in regard to water and petrol cooling, features unfortunately overlooked to a great degree in the past in the manufacture of cars for the Colonies.

\* \* \* \*

Considerable prominence and space are accorded in the *Motor* to hand on the possibilities of paraffin as a propulsive

power, which will be read with the greatest interest of South African motorists, to whom the exorbitant prices obtaining for petrol spirit has become a serious consideration. The opinion of experts and leaders in the trade on this subject form an interesting and instructive subject.

## Continental Tyres.

We have received from the Continental Tyre and Rubber Company specimen copies of new price lists which they are now issuing for solid tyres for commercial vehicles and accessories for motor cars and motor cycles. As regards solid tyres, the Continental Tyre people are the first South African firm to specialise in these, and have equipped themselves in such a manner as to be in a position to fulfil all requirements. To fit these tyres it is necessary to have a special hydraulic press, and they have installed one of these machines in Johannesburg, and will be pleased to demonstrate it to interested parties at any time. The necessary list issued by the company contains many lines of interest to all motorists, and they will be very pleased to send copies post free on application.

## Geldenhuis Deep.

The report on operations at the Geldenhuis Deep for the three months ended 30th June also embodies the interim balance sheet, working expenditure and revenue account, and appropriation account (subject to audit). The interim (abridged) balance sheet shows on the credit side for sundry assets—shares, stores, live stock furniture, sundry debtors, and payments in advance £52,212, and cash on deposit at bankers, value of gold in transit and investments £147,131. The liabilities are sundry creditors, on account of dividends, stores, wages, Government tax, etc., £132,682, and balance of appropriation account £83,109. Working expenditure and revenue account received from gold won £255,819, out of which total working expenditure absorbed £209,080, or 25s. 1d. per ton milled, which left a working profit of £46,737, or 5s. 8d. per ton milled; sundry revenue brought in £330, and the profit on treatment of accumulated slimes was £1,527, together making the profit for the quarters £48,600. The interim appropriation account (subject to amendment) has a balance brought forward from the 31st December of £56,626, balance of working expenditure and revenue account for the three months ended the 31st March £12,578, and for the three months ended the 30th June, £48,600, the total amount being £117,804. Against this sum is charged Government tax (estimated) for the six months £46,210, and dividend account for dividend No. 25 declared on the 8th June £55,573, which leaves the balance of £13,109 carried to the balance sheet as stated above. The profits appropriated in the last quarterly report, amounting to £7,271, have been revised. The credit balance of appropriation account is not wholly available for distribution, as the capital expenditure for the six months ended the 30th June (£19,164 for new construction, etc., and £951 in respect of under mining rights annuity), have not yet been appropriated. The amount to be appropriated for these sums will not be determined until the end of the financial year. On development work 7,933ft. were driven, sunk and risen, exclusive of stopes. The reef disclosures were as follows: Main Reef—1,526ft. exposed; width, 16ins.; assay value, 50s. Main Reef Leader—2,219ft. exposed; width, 11ins.; assay value, 83s. 7d. South Reef—2,033ft. exposed; width, 19ins.; assay value, 5s. 16d. The tonnage crushed during the quarter was 165,000 tons, from which a total yield of 60,984 ozs. of gold, or 31s. per ton milled, was obtained. From 1,550 tons of accumulated slimes there was a yield of 51 tows. The tonnage milled was nearly 8,000 less than that of the previous quarter, entirely due to improved results from the west section. During the quarter the development redemption rate charged to working costs was increased from 2s. 9d. to 3s. 6d. per ton milled. The work in connection with the erection of the new headgear at No. 2 shaft is now approaching completion, and it is hoped to bring it into commission during July. The change over from the old to the new headgear will stop the hoisting operations at this shaft for two or three days. There has been a sharp decrease in the number of strikes at the company's service, with the result that the number now at work is below the requirements of the mine. The supply of ore in the north section is rapidly diminishing. The payable ore returned as fully developed for the six months ended the 30th June, 1912 amounted to 110,529 tons, the value of which is estimated at £78,441 per ton. In addition, a further 97,512 tons of payable ore were expected which will be realised, valued and included in the development when completely blasted out. The capital expenditure for the quarter on new construction has amounted to £12,368 11s. 6d. An amount of £19,570 is required for the completion of authorised work.



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The Lydenburg Estates has been reconstructed at least once in its career of fifteen years. The capital, by the order of Mr. Justice Neville, has now been reduced from £215,000 to £53,750 in shares of 5s. each.

We would not like to say that the shares are even worth their face value, for the company had no cash in hand, according to the last balance sheet, to develop its 32 farms, covering 148,233 acres, situated in the Transvaal. The chairman, Mr. Hay, recently paid a visit to the Transvaal, and has decided to initiate an active agricultural policy on the company's farms.

### New Companies.

- The following is a list of companies registered in August, 1912:
- 4010. John N. Sellar and Co., Ltd., 54-56, National Bank Buildings, Simmonds Street, Johannesburg; capital £3,000.
  - 4042. The Amalgamated Window Agency, Ltd., 5, Chorlton Chambers, Harrison Street, Johannesburg; capital, £200.
  - 4046. S.A. Amalgamated Jewish Press, Ltd., 6, Primrose Buildings, Fraser Street, Johannesburg; capital £2,000.
  - 4047. Wybert Frederik, Ltd., 7, Transvaal Bank Buildings, Fox Street, Johannesburg; capital £1,600.
  - 4049. The Premier Timber Co., Ltd., Bell's Buildings, corner of Main and Harrison Streets, Johannesburg; £3,000.
  - 4050. The Palladium Theatres, Ltd., 11 and 12, Steytler's Buildings, corner of Market Square and Loveday Street, Johannesburg; £10,000.
  - 4051. Britsdale Diamond Syndicate, Ltd., 3, General Mining Buildings, Main Street, Johannesburg; capital £3,000.

### Foreign Companies Registered.

- 4041. The Ulundi Gold Mining Co., Ltd., c/o Stewart Edington, Barberton; capital £110,000.
- 4043. Rudge-Whitworth (South Africa), Ltd., c/o Sidney Harry Adams, 45, Pritchard Street, Johannesburg; capital £5,000.
- 4044. Pilgrims Mining Estate and Exploration Co., Ltd., c/o Charles Henry Dawes, 53, Tudor Chambers, Pretoria; £250,000.
- 4045. Samuel Osborn and Co., Ltd., William Raeburn Snow, Hartfield, Melrose, Johannesburg; capital £200,000.
- 4048. The Transvaal Oil Shale Syndicate, Ltd., c/o Mayer Goodwin, 32, Royal Chambers, Simmonds Street, Johannesburg; £60,000.

### Extraordinary and Special Resolutions.

- 656. Transvaal Consolidated Land and Exploration Co., Ltd., Johannesburg; alteration of articles.
- 3262. Union Garage Co., Ltd., Johannesburg; section 196, Companies Act, 1909 (No. 31 of 1909).
- 3265. Hoheisen and Co., Ltd., Johannesburg; amendment of articles.
- 1810. Inhamitane Sugar Estates, Ltd., Johannesburg; adoption of agreement, London Scottish Rubber Syndicate, Ltd.
- 3730. *Sporting Life* Newspaper Syndicate, Ltd., Johannesburg; appointment of liquidators.

### Notices of Reduction and Increase of Capital

- 3914. Golden Hill Pongola Gold Mining Syndicate, Ltd., Johannesburg.
- 3747. Engineering Supplies, Ltd., Johannesburg.

### In Liquidation.

- 3050. Loupaardsvlei Main Reef Syndicate, Ltd., Johannesburg; voluntary.
- 2609. Langdon and Williams, Ltd., Johannesburg; voluntary.
- 1869. Pietersburg Hotels, Ltd., Johannesburg; voluntary.
- 2984. Potchefstroom Breweries, Ltd., Potchefstroom; voluntary.
- 3820. Hastie Mazoe Gold Mining Co., Ltd., Johannesburg.

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## Zaaiplaats Tin Mining Company, Ltd.

### NOTICE TO SHAREHOLDERS.


NOTICE IS HEREBY GIVEN that the Fourth Ordinary General Meeting of Shareholders of the Zaaiplaats Tin Mining Company, Ltd., will be held at the Head Office of the Company, Law Chambers, Church Square, Pretoria, on Tuesday 29th October, 1912, at 2.30 p.m. for the following purposes:—

- (1) To receive and consider the Directors' Report and Financial Statements for the year ended 31st July, 1912, together with the Auditor's Report.
- (2) To confirm the appointment of Mr. William Julius Gau as a Director of the Company, and to elect a Director in place of Mr. William St. John Kearney, who retires, but is eligible for re-election.
- (3) To appoint an Auditor for the ensuing year and to fix the remuneration of the retiring Auditor for the past year's Audit.
- (4) To transact any other business which may be transacted at an Ordinary General Meeting.

The Share Transfer Registers of the Company will be closed from the 25th October, 1912, to the 13th November, 1912, both days inclusive.

By order of the Board,

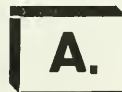
AFRICAN BOARD OF EXECUTORS AND TRUST CO., LTD.,

Secretaries, 

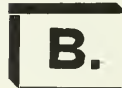
per J. M. MARTIN.

Pretoria,  
13th September, 1912

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## The Week's Company Meetings.

### CORONATION COLLIERIES.

#### Annual Meeting.

The third annual general meeting of the Coronation Collieries, Limited, was held at 38, National Bank Buildings, Johannesburg, on Tuesday at noon. Mr. A. Aiken presided, and those present included Major the Hon. W. L. Bagoet, Messrs. H. de V. Steytler, W. E. Goldby, W. F. Morris, J. E. Rutherford, F. Hilner and A. L. Tregoning. The number of shares represented at the meeting were 64,689 out of a possible 83,000.

#### Chairman's Speech.

Mr. Aiken, in moving the adoption of the accounts, etc., said: In moving the adoption of the report and accounts I have to congratulate the shareholders on the position which their company has now attained. The outlook in the coal trade of the Transvaal is good. There is an increasing demand for our coal, and that notwithstanding the displacement due to the power companies. It is only a question of time when there should be a considerable export trade through Delagoa Bay. The authorities there are waking up to the need for providing the facilities for coaling ships which are essential to the business. The Railway Administration is also improving its facilities, and providing more trucks, though the supply is still culpably inadequate. The reduction in freight rates of 1s. per ton from Witbank to Delagoa Bay is some small recognition of the fact that the charges in the past were unjustifiable, but it is not sufficient to relieve the rate-makers from the charge that they are still seeking to make excessive profits out of the coal-carrying business. But the real abiter of prosperity in the trade is the Coal Owners' Association. If it were to fail to be reconstructed at the end of the present agreements in June, 1913, the scramble for trade which would follow would undoubtedly end in lowering prices to figures which would leave a profit to no one. With coal delivered by the Associated Collieries at the pit's mouth at an average price of 4s. 6d. per ton, it is impossible to say that the association is acting unfairly to the consumer. Indeed the competition from outside concerns renders any fear of the kind groundless. In the steadying of the demand on individual collieries, as well as in the

steadying of the price, the association has improved the position of the constituent companies, and I sincerely trust that its life and usefulness will long continue. The output of the Associated Collieries during the year ended 30th of June last amounted to nearly four and a half million tons and the prices received according to the Government Mining Engineer's reports, work out on the average at 1s. 6.42d. per ton at the pit mouth. This is a still further fall in price as compared with the previous year. The average price, indeed, has been steadily falling ever since an association was formed which is a striking commentary on the charge popularly levelled against the combination. The nature of the case renders an association peculiarly liable to attack by collieries outside. All that one can claim is that the fall would have been greater had there been no association. The fall is also at least partly accounted for by increased sales of duff, which are, of course, at low prices. Provided that present conditions continue, however, we may hope to improve on the dividend which has been paid to the shareholders of the company during the last two years, now that the drain of the debenture redemption is ended.

### NEW KLEINFONTEIN.

#### Articles of Association.

The adjourned extraordinary general meeting of shareholders in the New Kleinfontein Company, Ltd., was held on the 10th of September. The object of the meeting was to consider an amendment to the articles of association. Mr. W. Dalrymple presided, and there were present Messrs. W. Ross, J. H. Ryan, A. G. Gill, G. R. Airth, C. R. Pinder, W. J. Gau, E. H. Read, H. Feltham, solicitor, and G. W. Austin, acting secretary. There were represented 98,777 shares.

The secretary read the notice calling the meeting, which was advertised in "The Star," and the Chairman said:

#### Chairman's Speech.

Gentlemen,—You have heard the notices calling the meeting, which the acting secretary has just read, and you are aware that on the date for which this meeting was originally convened we were unable to proceed with

the business owing to the absence of a quorum. I do not think there is any necessity for me to amplify the information contained in the notice and the circular which was issued to shareholders on the 29th of July last. The addition to the articles of association of the company which you are now invited to authorise as required in order that, in the event of its being decided at any future time to liquidate the company, its liabilities by means of an increase in capital, the company may be in a position to arrange for the payment of an underwriting commission to the guarantors of the issue. No provision has been made in the existing articles for the payment of such a commission, and without such provision this payment would be illegal under the Companies Act. One point I wish to draw your attention to, namely, that in the resolution which I am about to submit to the meeting the addition of "two words" or "value" has been made after the word "amount" appearing in the proposed article quoted in the notice calling the meeting. This addition has been made in order that the intention of the article may be made the clearer. I now beg to move

That the following article be and it is hereby, added to the articles of association of the company, namely, 6a. The directors may exercise the powers mentioned in the Companies Act, 1900, and any amendment that may hereafter be made thereto, as to paying a commission to any person in consideration of his subscribing or agreeing to subscribe, whether absolutely or conditionally, underwriting or guaranteeing the subscription for or of any shares in the company, but so that the commission payable out of capital money or in shares of the company shall not exceed the rate of, or an amount for value equal to, 10 per centum on the subscription price of the shares in such case offered or placed and such commission may be satisfied in whole or in part in fully paid shares.

Mr. Gill seconded the motion.

The Chairman said that holders of 1,417 shares had notified that they were either against the resolution or not in favour of certain of the conditions. He therefore declared the resolution carried by 97,110 shares against 1,417. He also intimated that to give effect to the resolution it would require confirmation at a further extraordinary meeting, which had been convened for Friday, the 27th inst., at 12 noon.

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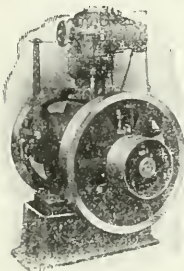
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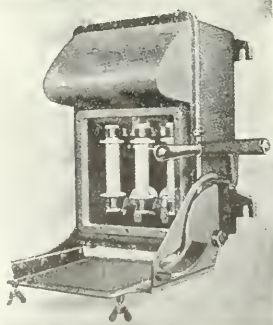
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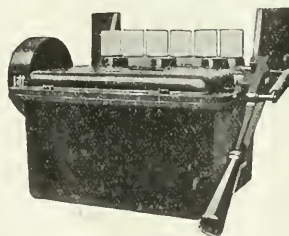
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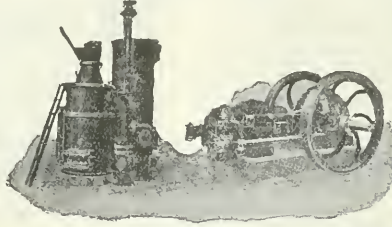
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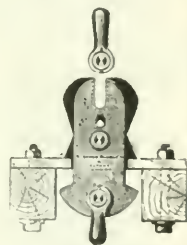
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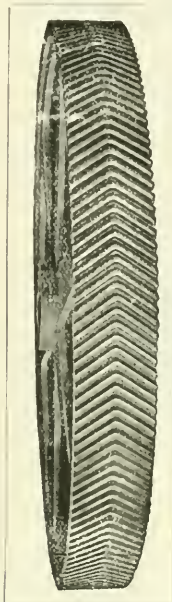
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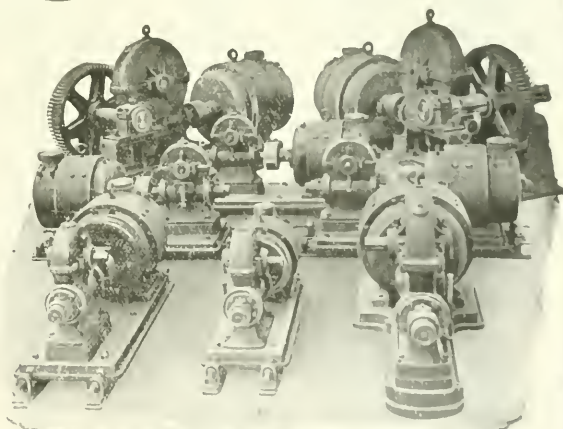


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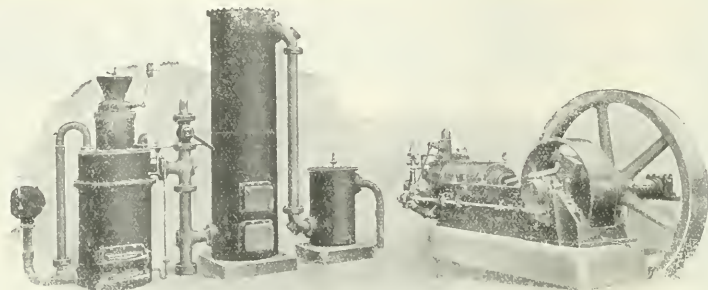
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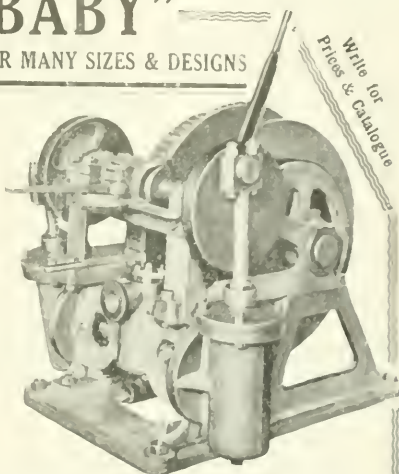
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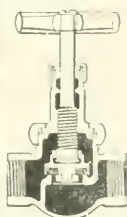


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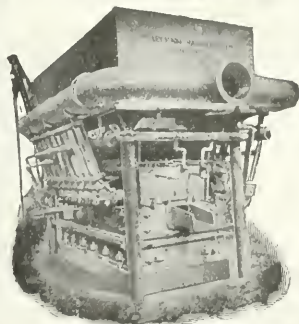
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# THE "S. A. MINING JOURNAL"

## Mining Machinery and Material Directory

and List of Professional Men (Engineers, Assayers, &c.) practising in various parts of South Africa, Shipping and Forwarding Agents, Company Notices and Reports, and Miscellaneous Advertisements.

	PAGE.		PAGE.
<b>A</b>		<b>M</b>	
Arc Lamps	iii., iv.	Mills, Water	1st Cover
Anti Friction Metal	59	Metal Cutting and Welding, Oxy Acetylene Process	x., xv.
		Metals and Minerals, Buyers and Sellers of	67, 68
<b>B</b>		Mills, Rotary	1
Banks	ii.	Mining and Engineering Supplies	62, 63, 64, 65
Belted	vi.	Motor Cars, Accessories and Repairs	
Boiler Mountings	x.		
Boiler Tubes	1st Cover.		
Booksellers	67		
Boring, Water	vi.		
Bridges	ii.		
		<b>N</b>	
<b>C</b>		Naphtha	3rd Cover
Carbide	xiii.		
Carbon Brushes	xii.		
Coal Cutters	58		
Company Notices	Back of Index.	<b>O</b>	
Compressors, Air	ii., 58	Oils	3rd Cover
Constructional Work	ii., x.	Oilskins	66
Couplings	4th Cover.		
Crusher Jaws	xi.		
Culverts, Steel	1st Cover.		
Cyanide Vats	ii.		
Cylinders, Brass	x.		
		<b>P</b>	
<b>D</b>		Paints	xix.
Disinfectants	xvi.	Paraffins	3rd Cover
Drills, Rock	58, 2nd and 3rd Covers.	Petroleum Products	3rd Cover
Drill Sharpeners	viii.	Pipe and Belt Threading Machines	xi
Drill Steel	xi.	Pipes and Fittings	59, 1st Cover
		Plates Steel	x
<b>E</b>		Plummer Blocks	4th Cover
Electrical Supplies	ix., xii., 69	Power Heads	x
Engineering Works	ix.	Power Transmitting Machinery	4th Cover.
Engines, Gas	iv.	Professional Directory	xii.
Engines, Haulage	xv.	Pumps	x., 41
Engines, Oil and Petrol	x., xiv., 68	Pumps, Centrifugal	x., 4
		Pump Columns	1st Cover
<b>F</b>		<b>R</b>	
Filters, Vacuum	x.	Railway and Tramway Points and Crossings	x
Foundries	ix.	Rolls, Cones, etc.	x
		Ropes, Cotton Driving	xv
<b>G</b>		Ropes, Wire	11
Gas Plants	iv., x., xii.		
Gears	xiii		
Girders	1		
Greases	3rd Cover		
Grinding Wheels	xi.		
Grizzly Bars	xii.		
		<b>S</b>	
<b>H</b>		Screwing Machines, Hand and Power	1
Headgears	ii	Smelters and Refiners	61, 62
Hooks, Safety, Detaching	xi	Shipping and Forwarding Agents	11, 12
		Ships, Wheels	x
<b>I</b>		Sighting Equipment	xv
Indent Merchants	xvi.	Statements and Printers	x
Insurance	xiv.	Steamship Company	x
Iron, Angle and Bar	xvi.	Steel, Drill	xi
		Steel	xi, 41
<b>L</b>		Stocks and Dies	xv
Lamps, Arc	iii., iv.	Stonebreakers	6
Locomotives, Steam	iv.	Switchgear	6
Lubricants	3rd Cover.		
		<b>T</b>	
		Tools	x
		Tube, Mill Pegs	xvi
		Tubes, Steel	1st Cover
		Tubes and Fittings	x
		<b>V</b>	
		Valves and Fittings	ii, x., xv, 59
		<b>W</b>	
		Washers, Fasteners	65
		Water Boring	vi.
		Welding, Oxy Acetylene	x., xv
		Wheels and Axles	xi

## FERREIRA DEEP, LIMITED.

(Incorporated in the Transvaal)

### Declaration of Dividend No. 19.

NOTICE is hereby given that an Interim Dividend of Twenty-two and a Half per cent. (four shillings and sixpence (4s. 6d.) per share) has been declared by the Board for the half-year ending 30th September, 1912.

This Dividend will be payable to all Shareholders registered in the Books of the Company at the close of business on 30th September, 1912, and to holders of Coupon No. 19 attached to Share Warrants to Bearer.

The Transfer Books of the Company will be closed from the 1st to the 7th October, 1912, both days inclusive.

The Dividend will be payable to South African Registered Shareholders from the Head Office, Johannesburg, and to European Shareholders from the London Office, 1, London Wall Buildings, London Wall, E.C., on or about the 4th NOVEMBER, 1912.

Holders of Share Warrants to Bearer are informed that they will receive payment of the Dividend on presentation of Coupon No. 19 at the London Office of the Company, or at the Compagnie Française de Banque et de Mines, 20, Rue Taibout, Paris.

Coupons must be left four clear days for examination, and will be payable at any time on or after the 4th November, 1912.

By Order of the Board,

RAND MINES, LIMITED, (Secretaries,

S. C. STELL, Joint Secretary.

Head Office.

The Corner House, Johannesburg,  
10th September 1912.

42002

## NOURSE MINES, LIMITED.

(Incorporated in the Transvaal.)

### NOTICE TO SHAREHOLDERS.

NOTICE IS HEREBY GIVEN that the Sixteenth Ordinary General Meeting of Shareholders for the year ended 31st July, 1912, will be held in the Board Room, The Corner House, Johannesburg, on WEDNESDAY, 30th OCTOBER, 1912, at 11 a.m., for the following business:—

1. To receive and consider the Balance Sheet and Accounts for the year ended 31st July, 1912, and the Reports of the Directors and Auditors.
2. To elect Directors in the place of the present Board, who retire in accordance with the provisions of the Articles of Association, but are eligible and offer themselves for re-election.
3. To determine the remuneration of the Auditors for the past audit and to appoint Auditors for the ensuing year.
4. To transact any other business which may be brought under consideration by the Report of the Directors.

The Share Transfer Books of the Company will be closed from the 30th October, 1912, to the 5th November, 1912, both days inclusive.

Holders of Share Warrants to Bearer who desire to be present or represented at the Meeting must deposit their Share Warrants (or may at their option produce same) at the places and within the times following:—

- (a) At the Head Office of the Company in Johannesburg, at least twenty-four hours before the time appointed for the holding of the Meeting;
- (b) At the London Office of the Company, No. 1, London Wall Buildings, London, E.C., at least thirty days before the date appointed for the holding of the Meeting;
- (c) At the Office of the Compagnie Française de Banque et de Mines, 20, Rue Taibout, Paris, at least thirty days before the date appointed for the holding of the Meeting;

and must otherwise comply with the "Conditions as to the issue of Share Warrants or Bearer Shares" now in force.

Upon such deposit or production a certificate, with proxy form, will be issued under which such Bearer Warrant holder may attend the Meeting either in person or by proxy.

By Order of the Board,

RAND MINES, LIMITED (Secretaries),  
S. C. STELL, Joint Secretary.

Head Office: The Corner House,  
Johannesburg, Transvaal,  
11th September, 1912.

## Transvaal Gold Mining Estates, Ltd.

(Incorporated in the Transvaal.)

### NOTICE TO SHAREHOLDERS

NOTICE IS HEREBY GIVEN that the Fifteenth Annual Ordinary General Meeting of Shareholders will be held in the Board Room, The Corner House, Johannesburg, on FRIDAY, the 20th SEPTEMBER, 1912, at 12 o'clock, noon, for the following business:—

1. To receive and consider the Balance Sheet, Working Expenditure and Revenue Account and Appropriation Account for the year ending 31st March, 1912, and the Reports of the Directors and Auditors.
2. To confirm the appointment of Mr. J. H. Ryan as a Director of the Company in place of Sir A. Bailey, K.C.M.G., resigned.
3. To elect two Directors in place of Messrs. S. Evans and J. H. Ryan, who retire by rotation in accordance with the provisions of the Company's Articles of Association, but are eligible and offer themselves for re-election.
4. To elect Auditors in place of Messrs. Howard Pim and Chas. Stuart, who retire, but offer themselves for re-election, and to fix their remuneration for the past audit.
5. To transact General Business.

The Transfer Books will be closed from the 20th September, 1912, to 26th September, 1912, both days inclusive.

Holders of Share Warrants to Bearer wishing to be present or represented at the Meeting must deposit their Share Warrants, or may at their option produce same at the places and within the times following:—

- (a) At the Head Office of the Company in Johannesburg at least 24 hours before the time appointed for the holding of the Meeting.
- (b) At the London Office of the Company, No. 1, London Wall Buildings, E.C., at least 30 days before the date appointed for the holding of the Meeting.
- (c) At the Compagnie Française de Banque et de Mines, 20, Rue Taibout, Paris, at least 30 days before the date appointed for the holding of the Meeting.

And must otherwise comply with conditions as to the issue of Share Warrants or Bearer Shares now in force.

By Order of the Board,

W. RUSSELL SLACK, Secretary.

Head Office:

The Corner House, Johannesburg,  
21st May, 1912.

42122

## Swaziland Tin, Limited.

(Incorporated in the Transvaal.)

### NOTICE TO SHAREHOLDERS.

NOTICE IS HEREBY GIVEN that the Seventh Annual Ordinary General Meeting of Shareholders will be held in the Board Room, The Corner House, Johannesburg, on FRIDAY, 20th SEPTEMBER, 1912, at 2.30 p.m., for the following business:—

1. To receive and consider the Balance Sheet, Working Expenditure and Revenue Account and Appropriation Account for the year ending 30th June 1912, and the Reports of the Directors and Auditors.
2. To elect Directors in the place of Messrs. E. A. Wallers and C. Distel, who retire by rotation in accordance with the Company's Articles of Association, but are eligible and offer themselves for re-election.
3. To elect Auditors in the place of Messrs. Alex. Aiken & Carter, who are eligible for re-election, and to fix their remuneration for the past audit.
4. To transact General Business.

The Transfer Books of the Company will be closed from the 20th September, 1912, to the 26th September, 1912, both days inclusive.

By Order of the Board,

FRANK S. MILLER, Acting Secretary.

Head Office:

The Corner House, Johannesburg,  
14th August, 1912.

42123

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kindly mention the  
SOUTH AFRICAN MINING JOURNAL.

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**HAND HAMMER DRILLS,**

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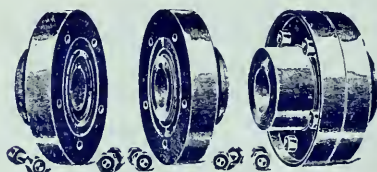
### Cast Iron Pulley Couplings.

With Bolt Heads and Nuts Shrouded.

Bored, Turned, Polished; Key Beds Cut, Bolt Holes Reamed

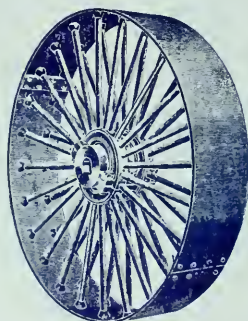
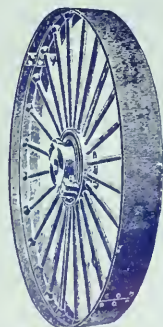
Fitted with Turned Steel Bolts, with Finished Hexagon Heads and Nuts

The Joint Surfaces are Recessed and Projecting, carefully Turned and Fitted



Single Arms  
Patent Rims.

Double Arms  
Extra Strong.



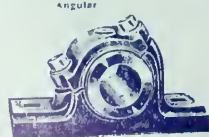
Standard Plummer Blocks.

Gun-Metal Bearings

Non-Self-Oiling



Standard



Angular

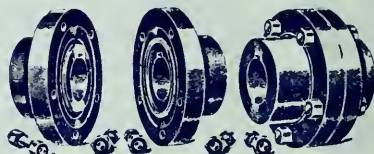
### Cast Iron Flanged Couplings.

Ordinary Type.

Bored, Turned, Polished; Key Beds Cut, Bolt Holes Reamed

Fitted with Turned Steel Bolts, with Finished Hexagon Heads and Nuts

The Joint Surfaces are Recessed and Projecting, carefully Turned and Fitted



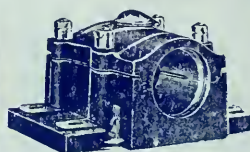
"Harvey" Type  
Plummer Blocks.

Convertible Fixings.

Can be used either as Hangers or Floor Stands.

King Oiling.

Bearings lined with Anti-Friction Metal.



Plummer Blocks.

Non-Adjustable

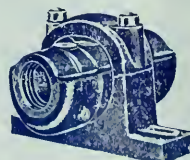
With Swivelling Bearings.

Lined with Anti-Friction Metal.



SECTION

Showing Oil Chamber, Lubricating  
Rings and Set Collar



Actual Bearing Surface, 3 Diameters long.  
Overall length of Standard Plummer Block, 4 Diameters.  
Overall length of Plummer Block to carry Set Collars, 5 Diameters.